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**The Impact of Communicating Liking on the Formation  
of Children's Friendships**

**Doctoral Dissertation  
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 Kevin Murphy, Ottawa, Canada, 1990



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## Abstract

Based on a review of the literature relevant to children's friendships and friendship formation, it was hypothesized that the communication of liking between children may play an important role in the development of such friendships. The first step in testing this hypothesis involved the identification of those behaviors that might be important for children in conveying liking and interest. In an initial study, 65 children (aged 9-11) were interviewed concerning the behavioral basis for their own impressions regarding who liked or disliked them in their peer group. These same children also rated a set of behaviors in terms of the inference (of level of liking) they would likely make if a hypothetical new classmate had directed that behavior toward them. Based on these data, 22 behaviors were tentatively identified as likely being among the more important cues used by children of this age in judging the level of liking other peers had for them.

A second study was then conducted to confirm the communicative potential of these behaviors by having another sample of 260 grade-5 students read a series of hypothetical vignettes. In each vignette a single behavior taken from this set of 22 behaviors, its opposite, plus a neutral incident constituted the evidence available to children for inferring the level of liking between characters in that vignette. The 16 positive behaviors selected from Study 1 all led to inferences of liking that were significantly more positive than the neutral point on the rating scales provided. The six negative behaviors each led to significant inferences of disliking. In addition, the behaviors that tended to be most frequently mentioned by children in explaining their own impressions in Study 1 were also those which tended to result in stronger inferences of (dis)liking in the hypothetical contexts provided in these vignettes.

These behaviors, all of which were expected to convey liking, were then incorporated into a measure of behavioral communication of liking. This scale was designed as a

peer-report measure in which children were asked to rate how many times every other classmate had directed each of these behaviors toward them within a clearly defined time period. Once formatted in this manner, the psychometric properties of this scale were evaluated in a third study by administering this measure as well as several comparison instruments to a new sample of 260 grade-5 students. Psychometric properties considered included factor structure, internal consistency, construct (convergent and discriminant) as well as predictive validity. Results suggest that this behavioral communication of liking scale is capable of generating a fairly good measure of children's behavioral tendencies to convey liking toward other peers.

Patterns of correlations between measures in Study 3 were also examined to see if these supported the proposed model for this research; that is, that these behaviors are socially relevant because they serve to convey interest in and liking for others and, in turn, stimulate a reciprocal response of increased liking and interest from peers. Results support a conclusion that the behaviors included on the Behavioral Communicators of Liking Scale are socially relevant and that an appreciable portion of the relational impact of these behaviors may be due to their ability to convey liking. At the same time, results indicate that classmates' levels of liking were probably also being affected by factors other than their impressions of who liked in them.

The final study for this dissertation involved an experimental manipulation of relational communication in the context of a social skills training program. The primary criteria for selection into this intervention program was that the child had to have very few or no friends and display behavior patterns unlikely to convey liking toward their peers. Interventions featured both friendship skills coaching and ongoing relationship problem solving focusing on a small number of the child's peer relationships. Specifically, children were encouraged to communicate interest and liking toward selected friendship targets by directing toward these peers behaviors which had been identified in earlier studies as

potentially strong communicators of liking between children.

Significant treatment-related improvements were found in terms of how much peer friendship targets liked the children enrolled in this social skills training program, in these friendship targets' impressions regarding how much treatment children liked them, and in the ratings treatment children received from their friendship targets on the positive behavioral communication factor. in the development of children's friendships

It was concluded that this research generated some support for the argument that such relational communication may represent an interpersonal process deserving further investigation since it may represent an important first step in friendship formation. Thus, this communication process might be best seen in terms the sending of a signal which lets the other child know that the opportunity for closer friendship exists if she/he wishes to take advantage of it while at the same time contributing to a more positive affective tone in that relationship.

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## Introduction

In the last decade, considerable attention has been given to children's peer relations. Fueled by a consistent finding of a moderate predictive relationship between the level of acceptance a child experiences from his/her peers and a variety of indices of later psychological adjustment (See Burleson, 1986; Parker & Asher, 1987 for reviews), the resultant research activity has substantially increased our knowledge in the area of children's social development. As well, considerable progress has been made in identifying children with poor peer relations (e.g., Asher & Dodge, 1986; Coie, Dodge & Coppotelli, 1982; Newcomb & Bukowski, 1983; Peery, 1979) and in our ability to ameliorate these children's relations with their peers (e.g., Ladd & Mize, 1983; LaGreca & Santogrossi, 1980).

Recently, however, there has been increased interest in distinguishing between friendship and overall peer-group status (e.g., Bukowski & Hoza, 1989; Furman & Robbins, 1985) and in considering the developmental contributions of close friendships as opposed to the effects of being generally accepted or rejected by one's peers (Asher & Parker, 1989; Bukowski & Hoza, 1989; Nelson & Aboud, 1985; Price & Ladd, 1986). Closely related to the distinction between close friendship and popularity has been the issue of what constitutes meaningful improvement in any child's peer relations since improvements in overall peer-group status do not necessarily imply increased numbers of close friends (Asher & Parker, 1989; Bukowski & Hoza, 1989; Furman & Robbins, 1985; Kennedy, 1988).

Focusing on children's friendships rather than overall peer-group status also raises new questions concerning the reasons why some children are able to develop satisfying close friendships while other children do not, how one assesses friendship in childhood, and which intervention strategies are most effective for enhancing friendship development with children. Very similar issues have been raised and/or are being addressed in

the context of overall peer-group status. For instance, considerable attention has been given to factors influencing overall peer-group status and the general behavior of children (e.g., Dodge, 1985, Gresham, 1981a), as well as optimal methods for assessing overall peer-group status and general social behavior (e.g., Asher, Markell & Hymel, 1981; Bierman & McCauley, 1987; Bullock, Ironsmith & Poteat 1988; Elliott & Gresham, 1987; Foster & Ritchey, 1979; French, Wass & Tarver-Behring 1986; Michelson & Wood, 1980). In addition, there now exists considerable research regarding how to most effectively ameliorate general peer-related social difficulties (e.g., Berler, Gross & Drabman, 1982; Foster, DeLawyer & Guevremont, 1985; Gresham & Nagle, 1980; Parker & Gottman, 1989; Sancilio, 1987). However, as greater emphasis is placed on friendship and friendship development in children, there would seem to be a need to address these issues as they specifically relate to children's friendships.

With this in mind, the research to be presented in this dissertation was designed to explore the role that a child's communication of liking toward another peer might play in the evolution of their friendship. In order to establish the context for this investigation, the first five chapters of this dissertation review some of the recent literature in the area of children's friendships. The first chapter focuses on the distinction between close friendship versus popularity and the essential characteristics of such friendships. The second chapter considers the importance of friendship in terms of its unique contributions to child development. The third chapter considers how such friendships are formed both in terms of the factors influencing friendship choice and how these friendships evolve. Here, special attention will be given to the reasons for expecting that the communication of liking for another person might be an important part of the friendship making process. Also to be considered will be the possible limitations in the influence that this communication process may have on children's friendship choices.

The fourth chapter examines friendship enhancement as an intervention goal with

particular attention given to how techniques employed in intervention programs designed improve children's general peer relations might be applied to interventions focusing explicitly on friendship enhancement. Finally, the last chapter of the literature review focuses on possible methods for assessing children's friendships. Such a review is relevant because one goal of this research was the development and utilization of a new measure assessing those peer-directed behaviors which seemed to have the greatest potential to convey liking between children. In addition, assessing patterns of friendship requires adaptation in the procedures typically used to measure peer-group status.

Following these five chapters on children's friendships will be a brief recapitulation and integration of the key points raised in each of the preceding chapters. Highlighted will be those issues which this present research hopes to address. The remaining chapters of this dissertation are devoted to the presentation and discussion of the results of this research. First will be an introductory chapter briefly describing each of the four studies conducted for this dissertation. This will be followed by four chapters each describing the methods and results of a single study in greater detail. Finally, a general concluding chapter will discuss the combined results of these four studies as these relate to the topic of interest in this dissertation, i.e., the role that the communication of liking between children plays in the development of their friendships.

## CHAPTER ONE

### Characteristics of Children's Friendships

#### Overview:

This chapter explores the meaning of friendship in childhood. First discussed will be distinction between being popular versus having one or more close friends. Subsequently, positive characteristics of friendship or what is 'special' about relationships between close friends will be examined. Next, the role of negative behavior, conflict and conflict management in friendship will be explored with particular attention given to possible qualitative differences in the conflicts which occur between friends and those involving more casual acquaintances. This will be followed by a section considering possible gender differences in children's friendship relations.

#### The Distinction between Popularity and Friendship

Increasingly, researchers are distinguishing between being generally liked or accepted within one's peer group (i.e., being popular) and having one or more close friends within that group (Asher & Parker, 1989; Bukowski & Hoza, 1989; Price & Ladd, 1986). It is possible to be generally popular while not having any really close friend(s) (e.g., Parker & Asher, 1988). Furthermore, while popular children tend to have more reciprocal or mutual close friends than their less accepted classmates (Buzzelli, 1988), even children who are generally rejected often have at least one close, mutual friend (Buzzelli, 1988; Furman & Robins, 1985; Asher & Parker, 1989). Finally, poorly accepted children who have at least one mutual friend report receiving as much companionship from these friends as do their more popular counterparts (Parker & Asher, 1988). Thus, though there tends to be some association between level of popularity and number of close

friends especially when friendship and status are assessed using similar measures of social preference/liking (Bukowski & Hoza, 1989; Feltham, Doyle, Schwartzman, Serbin & Ledingham, 1985) it would seem that popularity and friendship do represent distinct aspects of children's peer relations.

Further support for the distinction between popularity and friendship can be found in a study by McGuire and Weisz (1982), who found that children with close friends in their peer group(s), as identified by the presence of high levels of mutual liking, scored higher in terms of altruism and affective perspective-taking than did children without such close friendships. This was true regardless of children's overall peer-group status. Similarly, Berndt and Das (1987) found that children's perceptions of friends' levels of prosocial and aggressive behavior did not vary as a function of whether that friend was popular or unpopular within the larger peer-group. This latter finding was interpreted by these researchers as suggesting that many unpopular children are able to engage in relationship enhancing behavior at least with their close friends. Thus, considering only overall peer-group status may underestimate the interpersonal skills of children who, while not widely accepted in their peer groups, are able to maintain several close friendships amongst their peers (Asher & Parker, 1989; Roopnarine, Adams & Mounts, 1988).

At the same time, overall peer-group status is not necessarily an irrelevant factor. It is a consistent predictor of a fairly wide range of long-term psychological and social outcomes (see Parker and Asher, 1987 for a review). In addition, behavioral differences have been found between children who are popular and those who tend to be generally disliked (e.g., Carlson, Lahey & Neeper, 1984; Coie, Dodge & Kupersmidt, in press; Dodge, Schlundt, Schoken & Delugach, 1983; Foster, DeLawyer & Guevremont, 1985; Ladd, 1983). As well, not all studies contrasting the behavior of popular and unpopular children with and without close friends have found greater differences between children with/without friends than those found between children occupying different status posi-

tions. For example, Austin and Draper (1984) found that while both popular and unpopular children tended to laugh more with friends, popular children, in general, made fewer irrelevant remarks, were less defiant and more verbally responsive to their peers than were their less popular counterparts. These findings appear to support Bukowski and Hoza's (1989) argument that it is important to consider individuals in terms of multiple levels of social experience with one of these levels being involvement in close mutual friendships.

These authors drew several distinctions which they felt could be used to differentiate between popularity and friendship. First, friendship is a dyadic rather than a group experience. As a result, such friendships are only accessible from an assessment/research point of view if analyses employ data that describe interactions and feelings specific to given dyads. Second, friendship is bilateral rather than unilateral and therefore both children's feelings should be considered. Also, friendship involves more than simply mutual liking and is, as Bigelow (1977) points out, an active, multi-faceted relationship. This awareness has stimulated considerable research directed towards the identification of critical features of friendship. It is to this research that we now turn.

#### Positive Characteristics of Children's Friendships

Despite the diverse methodologies that have been employed to study children's friendships, there appears to be considerable consistency in findings regarding friendship characteristics. As a result, the following review has been organized on a basis of different features of friendship rather than by methodology. Evidence for developmental or age-related shifts in friendship characteristics (e.g., Bigelow, 1977; Berndt, 1982; Selman & Selman, 1979) have been incorporated by describing, on a feature by feature basis, the point in the developmental cycle when various friendship characteristics appear to be most relevant.

Proximity. In the literature on interpersonal attraction in adults, proximity has often cited as an important factor in relationship development (e.g., Argyle, 1978; Festinger, 1951; Homans, 1961 cited in Z. Rubin, 1973). Such proximity increases the opportunities for casual encounters (Festinger, 1951) and reduces the amount of effort required to maintain such contact (Homans, 1961 cited in Z. Rubin, 1973). Similar arguments have been proposed for expecting proximity to play an important role in children's friendships (e.g., Clark & Drewry, 1984; Spurgeon, Hicks & Terry, 1983) particularly because of children's more restricted mobility (Epstein, 1989). Thus it is not surprising that proximity both in the school setting (Cooper, Marquis & Edward, 1986 cited in Epstein, 1989; Epstein, 1986; Hayes, 1978; Spurgeon et al, 1983) and in the neighborhood (Epstein, 1986; Fine, 1980; Hallinan & Sorenson, 1985) appears to be an important feature/determinant of close friendships throughout childhood (Price & Ladd, 1986) and is recognized as such by children themselves (Furman & Bierman, 1983; Spurgeon et al, 1983)

Shared activity/interests. Children spend more time with friends than with non-friends (Hartup, 1989; Price & Ladd, 1986). In early childhood (ages 3 - 7) much of this time is spent in play (Bigelow (1977; 1983; Selman & Selman, 1979) and mutual preference as play partners as well as the degree of co-ordination achieved in such play represents a primary criterion for identifying close friendship at this age (Price & Ladd, 1986). Indeed, when pre-school and primary school-aged children were asked to identify important characteristics of friendship, participation in common or shared activities was either the most frequently (Furman & Bierman, 1983) or one of the most frequently (Hayes, 1978; Ramsay, 1988) mentioned characteristics.

Between the ages of 4 and 7 there is a drop in the relative emphasis given to shared activities and interests in children's friendships expectations (Furman and Bierman, 1983). This pattern appears to continue into pre-adolescence (e.g., Berndt & Perry, 1986;

Bukowski, Hoza & Newcomb, 1987 cited in Bukowski & Hoza, 1989). However, even pre-adolescent children perceive playing together as an important friendship activity and spend a lot of time simply hanging around and/or talking with their friends (Berndt & Perry, 1986; Spurgeon et al, 1983). Thus, though the focus of the shared activities between friends may shift with age, and decline in terms of relative importance, time spent together in shared activities appears to be an important feature of friendship throughout childhood.

Similarity. Children often show preference in friendship selection for peers of similar age (Epstein, 1989). Furthermore, same-aged friendships tend to be more enduring than friendships involving children of different ages (Drewry & Clark, 1983; Epstein, 1989). In addition, Erwin (1985) found that grade 8 children were more similar to their close friends in terms of both activity interests and characteristics such as sociability than they were to non-friends. Children in grades 5 and 6 have also been found to be more similar to close friends than to non-friends in terms of academic performance (Tesser, Cambell & Smith 1984), while children in grades 1 and 4 have been found to be highly similar to their friends in terms of interests, fears, abilities and even physical appearance (Ladd & Emerson, 1984). Finally, Bukowski and Kramer (1986) found degree of similarity to be one of the factors that influenced children's judgments regarding whether two characters in a hypothetical vignette were likely to be friends.

There is evidence of a developmental shift in the dimensions for which similarity is important. Similarity in age, race, physical attributes and activity preferences decline in emphasis (Furman & Bierman, 1984; Ladd & Emerson, 1984) while similarity in tastes, interests and attitudes (Berndt, 1982; Furman & Bierman, 1984; McGuire & Weiss, 1982), especially toward school (Spurgeon et al, 1983) become increasing important. However, even in early adolescence, friends appear to be more similar than non-friends in terms of age, sex, race (Berndt, 1982) and social status (Clark & Drewry, 1985).

Interestingly, the explanations proposed for the association between level of attraction/liking and a variety of indices of similarity in children's friendship closely parallel those proposed in the literature on adult inter-personal attraction (e.g. Berscheid & Walster, 1978; Clark & Drewry, 1985, Duck, 1977; T.M. Newcomb, 1960 cited in Z. Rubin, 1973). Briefly, similarity, especially in attitudes and values, is believed to reduce conflict and increase interpersonal agreement which in turn increases the self-confirmation potential of a friend (Duck, Miell & Gaebler, 1980, Ladd & Emerson, 1984) as well as interpersonal understanding (Kurdek & Krile, 1982; Ladd & Emerson, 1984). Similarity of interests also is believed to facilitate engagement in shared activities (Clark & Drewry, 1985).

Tangible support, instrumental assistance. Generally, children expect material or instrumental assistance from friends (Bukowski & Hoza, 1989; Furman & Bierman, 1984; Hartup, 1989) and regard mutual sharing as an important aspect of friendship (Shannon & Kafer, 1984). Children also report receiving higher levels of tangible support from friends than casual acquaintances (Berndt & Perry, 1986), take level of sharing or helpfulness into account when assessing the likelihood that two other children were friends (Bukowski & Kramer, 1986) and appear to be more willing to share with friends than non-friends even when this reduces their own level of reward (Jones, 1985).

This provision of tangible support appears to be particularly salient for younger school-aged children between the ages of 4 and 9 (e.g., Berndt & Perry, 1986; Selman & Selman, 1979). However, even early adolescents rate friends more highly than non-friends in terms of sharing (Berndt, Hawkins & Hoyle, 1986) and report receiving higher levels of such instrumental support from friends than from non-friends (Berndt & Perry, 1986). Older children also show a greater concern than do younger children for maintaining equality of rewards with a friend in competitive situations and expect similar treatment from that friend (Berndt, 1985). Finally, twelve year-olds rank the receipt of help and

support (e.g., sticking up for the other) as being a more important friendship characteristic than either engaging in common activities or intimacy behaviors such as sharing secrets or talking about things (Bukowski, Hoza & Newcomb, 1987 cited in Bukowski & Hoza, 1989).

Emotional support, intimacy. For both girls and boys, there is a greater likelihood of intimate sharing of feelings and experiences in intensive dyadic relationships than in more extensive group interactions (Waldrop & Halverson, 1975). Furthermore, intimacy within friendship appears to become increasingly important in middle childhood and early adolescence (Berndt, 1982; Sullivan, 1953 cited in Asher & Parker, 1989). This may be partially due to increased perspective-taking skills and a consequently greater awareness of the other person in any friendship relation (McGuire & Weisz, 1982). Consistent with this shift, Furman & Bierman (1984) found, in comparison with children in Grades 2 and 4, that children in grade 6, placed greater emphasis on such characteristics as consideration and sensitivity. Similarly, level of intimacy between characters in hypothetical vignettes has been found to more strongly influence the friendship judgments of children in grade 7 compared to children in grade 4 (Bukowski & Kramer, 1986). Berndt and Perry (1986) also found greater differences in intimacy ratings given by older children to friends versus acquaintances as well as greater emphasis in older children's descriptions of interactions with friends on emotionally supportive behaviors such as talking about problems, cheering each other up and sharing personal information

At the same time, Berndt and Perry (1986) found that even grade 2 children described friends as being more emotionally supportive and intimate than non-friends. Furthermore, even children in Kindergarten and grade 2 have been found to be more likely to include highly personal information in messages audiotaped for a close friend than when they had been told that a neutral peer would receive this same tape (Rotenberg & Sliz, 1988). In addition, higher levels of shared knowledge and reciprocal (mutual)

understandings have been found between friends than between non-friends even with children as young as grade 1 (Ladd & Emerson, 1984). Thus, though younger children may be less likely to spontaneously mention intimacy related behaviors when describing their expectations and conceptions for friendship, their behavior and shared knowledge suggests that intimacy is an important characteristic in these children's friendships as well (Rotenberg & Sliz, 1988).

Trust. Several studies suggest that interpersonal trust may also be important in close friendships throughout childhood. Even children in Grade 1, when directly queried about their friendship expectations listed trust as an important feature of friendship (Shannon & Kafer, 1984). In fact, this study found failure to recognize the importance of trust for friendship to be a good predictor of poor peer relations. Similarly, Buzzelli (1988) found, with a slightly older sample (Grades 2 to 5), that children who were generally poorly accepted by peers and had no close mutual friends were less willing to extend trust than were those lower status children who had been able to maintain some close friendships.

While trust may be an important feature of friendship throughout childhood, there is also evidence suggesting that the basis of that trust may change as children grow older. In early adolescence this trust is usually framed in terms of a mutual commitment to meet each other's needs (Selman & Selman, 1979), to keep one's promises (Rotenberg & Tidwell, 1984 cited in Buzzelli, 1988), to not divulge private information exchanged (Berndt, 1982) and to be honest and genuine (Bigelow, 1977; 1983; La Gaipa, 1979). Thus, by early adolescence, trust within close friendships appears to be closely related to the fact that such friendships become increasingly characterized by intimate self-disclosure and the provision of emotional support (Asher & Parker, 1989; Fine, 1981; Furman & Robbins, 1985).

However, even with children in grade 4, level of friendship was positively

correlated with reports of secret keeping, promise keeping and trust, suggesting that the characteristics of trust and intimacy are also related in middle childhood (Rotenberg, 1986). At the same time, trust for children of this age group appears to be framed more in terms of loyalty (Berndt, Hawkins & Hoyle, 1986) and related more strongly to reliable access as a playmate (Bigelow, 1977) or to consistency, predictability in responding (Buzzelli, 1988; Rotenberg & Pilipenko, 1984). In contrast, younger children (kindergarten) tend to have a much shorter-term notion of trust that appears to be related most strongly with recent helpfulness or the immediate reinforcement value of a given peer as opposed to either temporal consistency, accessibility or respect of the confidentiality of intimate disclosures (Rotenberg & Pilipenko, 1984).

Reciprocity. Since friendship is bilateral (Bukowski & Hoza, 1989), expectations regarding how friends should treat each other tend to apply to both members. As a result, reciprocity is often listed as one of the critical features of friendship (e.g., Price & Ladd, 1986). Greater levels of mutual social responsiveness have been found in children's interactions with friends than with more casual acquaintances (Newcomb & Brady, 1982). Similarly, best friends tend to share different play roles (e.g., manager, follower) more equally than non-friends (Hartup, 1989; Stoneman, Brody & MacKinnon, 1984). Generally, this expectation of reciprocity, of receiving equal treatment becomes increasingly explicit as children get older (Berndt, 1982; Youniss & Volpe, 1978 cited in Jones, 1985), become less ego-centric and increasingly aware of the other people's needs (McGuire & Weisz, 1982). Thus, by early adolescence, children explain their sharing behavior in competitive situations in terms of the expectation that friends should share equally and assume that their friends would be similarly motivated to preserve this equality (Berndt, 1985). This expectation of reciprocity may account for the fact that, by grade 6, children's judgments regarding the level of friendship between two other children were not

only influenced by amount of intimate disclosure but also by the degree reciprocity in the intimacy level of these disclosures (Rotenberg & Mann, 1986). In addition, the level of trust each member of any friendship dyad holds for the other becomes more highly inter-correlated or reciprocal as children become older (Rotenberg & Pilipenko, 1984).

Positive affect, acceptance. Perhaps the most universally cited characteristic of friendship is the presence of mutual liking and preference. Since friendships are voluntary associations, such mutual liking appears to be an essential feature of friendship (Price & Ladd, 1986). Indeed, the presence of such mutual positive feelings between members of any friendship dyad consistently has been used as one of the defining criteria for friendship (e.g., Berndt, 1981, Berndt & Das, 1987; Jones 1985; Ladd & Emerson, 1984; Nelson & Aboud, 1985; Newcomb & Brady, 1985). At the same time, perhaps because the fact that friends must like each other may seem almost self-evident either by researchers or by the children themselves, there appears to have been little direct attention given to elaborating the relative importance of this characteristic. However, in one study involving children aged 4 and 7 (Furman & Bierman, 1983), over half the children did mention mutual liking/affection as a characteristic of friendship.

#### Methodological Challenges in Studying Characteristics of Children's Friendships

As will be discussed in greater detail in chapter 5 (pp. 79-88), the study of children's friendships entails a number of challenges. For one thing, several researchers (e.g., Gottman, 1983; Price & Ladd, 1985) have argued that it is important to actually observe interactions between friends if one wishes to identify interactional sequences relevant to children's friendships and friendship formation processes. However, many of the behaviors of importance to friendship may be relatively inaccessible to outside observation (Foster et al, 1986). As a result, self-report measures have been widely used to investigate

characteristics of children's friendships.

This reliance on self-report generates a number of methodological concerns including sensitivity of results to children's level of social-cognitive development (see Hymel & Frankie, 1985 for a review). In the context of investigating characteristics of friendship, often children have been asked to identify what is important in their own friendships or to describe their expectations regarding what friends should do with and/or for each other. As a result, age-related changes in children's conceptions of friendship may reflect shifts in understanding rather than actual changes in friendship dynamics (Gottman, 1983). Indeed as indicated in the preceding review, behavioral evidence for a given friendship characteristic (e.g., Rotenberg & Sliz, 1988) is often present before children begin reporting that this characteristic represents an important feature of friendship.

In addition, most of the schemes used to classify children's responses regarding features of friendship (e.g., Bigelow, 1977) have been logically rather than empirically derived. While the categories used generally appear to be reasonable, factor analytic confirmation of the empirical validity of such classification schemes would seem important. Still, this conceptions literature has proven useful for several reasons. First it has increased our knowledge of children's understandings of friendship. It has also suggested several features that might be important characteristics of such friendships and, in this way, guided subsequent research.

Indeed, extending the 'conceptions of friendship' literature, many of the studies in the foregoing review have sought to examine actual ongoing relationships in order to identify variables capable of differentiating between close friendships and less intensive relationships. However, even in these studies there has been a tendency to rely on self-report measures for assessing independent variables (e.g., Berndt & Perry, 1986). Furthermore, these studies have remained primarily correlative in nature and hence shed little light on the reasons why certain characteristics tend to be associated with friendship.

For example, most studies evaluating degree of similarity between friends in childhood have involved documentation of levels of similarity in pre-existing friendships. Such similarity often may be as much the consequence of friendship as its cause since friends can exert considerable influence on each other (Epstein, 1989). This is particularly true for less static personal characteristics such as attitudes and interests. As a result causal attributions regarding the role of similarity must be made with caution.

Similar concerns might be raised in conjunction with studies investigating other characteristics of friendship. For example, a number of studies (e.g., Bukowski, Hoza & Newcomb, 1987 cited in Bukowski & Hoza, 1989; Shannan & Kafer, 1984) found that children view the provision of material, tangible assistance as an important feature of friendship. Children also report receiving more such assistance from friends (Berndt & Perry, 1986) and have been found to be more willing to share with friend (Jones, 1985). While each of these studies, as well as others cited in the preceding sections might be questioned for one methodological reason or another such as small sample sizes, failure to include an appropriate comparison group, reliance on self-report measures or non-experimental data, the consistency of results across different studies is what provides the most compelling evidence regarding the essential characteristics of friendship in childhood.

Given this consistency, some confidence might be placed in these findings. At the same time, these studies might best be viewed as sources for hypotheses rather than definitive descriptions of children's friendships particularly when considering the function of any given characteristic. Indeed, one of the purposes of this dissertation is to study the potential role that conveying liking may play in the evolution of children's relationships. As noted earlier, positive affect is perhaps universally regarded as a defining characteristic of children's friendship. At the same time, the role of mutual liking in close friendships does not appear to have been explored in any great detail. One of the reasons for this may be methodological. Because friendships are usually identified on the basis of mutual

liking, comparing friends to non-friends in terms of levels of mutual preference would simply confirm the original criteria used to differentiate friends from non-friends. However, even in the literature on expectations or conceptions of friendship, little mention is made of the role of mutual liking within friendship or the communication of these feelings to another.

#### Conflict in Friendship.

The findings presented in the previous section suggest that a wide range of positive social transactions are associated with friendship. In fact, Foster, DeLawyer and Guevremont (1986) found that 91% of the positive behaviors reported by children as having influenced their liking of a peer occurred with friends. At the same time, 43% of the negative behaviors reported by these children also occurred with friends, indicating that it is the presence of the positive characteristics of friendship described earlier that is critical to these close relationships rather than the absence of negative interactions. Similarly, Berndt and Perry (1986) found only a low correlation, especially with older children, between children's reports of level of tangible and emotional support received from friends and the amount of conflict present in these relationships. Moreover, even at the pre-school level, children tend to receive and dispense more aversive behaviors to/from liked peers (Masters & Furman, 1981). All of these results suggest that considerable conflict occurs within children's friendships. Consistent with such a conclusion, Bukowski and Newcomb (1984) found that possession of negative characteristics was not necessarily detrimental to friendship formation as long as these were accompanied or balanced by compensatory positive traits. Finally, Berndt, Hawkins and Hoyle (1986) found that children's reports on the level of aggressiveness of a friend did not differentiate between friendships that remained stable and those which did not.

At the same time, there is also evidence to suggest that conflict, when it does occur within close friendships, may be dealt with differently than it is in less close relationships. For instance, children give more explanations when disagreeing with friends (Nelson & Aboud, 1985). This appears to reduce the amount of continued squabbling (Gottman, 1983). Children also issue less excessive demands to friends than non-friends (Gottman, 1983; Hartup, 1989), are more flexible in their negotiations with friends (Hartup, Laursen, Stewart & Eastenson, 1988; Gottman, 1983) and are less prone to break off interactions with a friend after the occurrence of conflict (Gottman, 1983; Hartup, 1989). Similarly, children when refusing a request for help from a friend, provide more explanations and promises to eventually grant denied requests, than they do with non-friends (Jones, 1985). Finally, children appear to be more responsive to the efforts of friends to resolve conflicts. Specifically, children report that they would be more likely to accept an apology from a best friend than from a casual friend following a failure to provide support/companionship or a violation of an expectation to dress appropriately to a party despite also reporting that they would likely experience greater initial upset if such incidents involved a close friend (Kahn & Turiel, 1988).

Such results suggest that interpersonal conflict need not be detrimental to friendship. Indeed, several authors (e.g., Gottman, 1983; Shantz & Hobart, 1989; Selman, 1980) have argued that successful resolution of conflicts can enhance friendships and increase feelings of closeness. Children are often involved in conflicts with peers concerning property rights, social control, and about the veracity of facts and rules (Shantz & Hobart, 1989). Though such conflicts may carry the potential to disrupt these relationships, often they do not (Hartup, 1989). In fact, conflict could be viewed as an important part of the process of negotiating the terms of an emerging friendship (Rizzo, 1987 cited in Hartup, 1989).

### Gender Differences in Children's Friendships

While few gender differences generally have been reported in terms either the positive features that characterize children's friendships or the role of conflict/negative interactions play within such relationships, there are some gender differences that appear noteworthy. First, children from early childhood to early adolescence display a marked preference in their friendship choices for same-sex peers (Asher & Hymel, 1981). There is also evidence to suggest that girls tend to develop and maintain smaller, more restrictive or exclusive friendship circles than do boys. (Berndt, 1982; Foster, DeLawyer & Guevremont, 1986; Waldrop & Halverson, 1975). As a result, girls appear to make greater use of positive behaviors to mark friendship boundaries (Berndt, 1981) and to distinguish more sharply between friends and non-friends (Berndt, 1981; Spurgeon et al, 1983). Girls also expand their friendship networks more slowly than boys (Berndt & Joyle, 1985) and tend to be more resistant to the inclusion of a third child into an existing friendship dyad (Eder & Hallinan, 1978).

Considering the above pattern of results, girls may attend more to networks of affiliation/ current friendship than do boys. Consistent with such an interpretation, girls have been found to cite incidents of exclusion as a factor influencing their feelings toward friends more frequently than boys while boys tend to cite property violations and physical aggression more often (Foster, DeLawyer & Guevremont, 1986). At the same time girls are not totally exclusive in their friendships nor are boys only involved in exclusive, group-oriented friendship networks (Eder & Hallinan, 1978). Furthermore, Foster et al (1986) found no differences between boys and girls in terms of the frequency with which they reported the eight other negative behaviors (e.g., being bossy, refusing a request) and twelve different positive behaviors (e.g., sharing humor, doing an unsolicited favor) as having influenced the development of their friendships. In addition, boys and girls tend to give fairly similar rankings in terms of the relative importance of various friendship

characteristics (e.g., similarity in attitude toward school) and shared activities (e.g., sitting together) (Spurgeon et al, 1983). This same study found both boys and girls to be more similar to friends than to non-friends in terms of activity preferences (e.g., the degree they liked reading comics), and ratings regarding the importance of various internal characteristics (e.g., bossy, quiet, funny, kind).

Finally, while there is evidence to suggest that girls may place greater emphasis on the importance of intimacy in friendship (Berndt, 1981; Rotenberg, 1986; Sharabany, Gershoni & Hoffman, 1981), intimacy and emotional support also appear to be important to the friendships of boys. For instance, proportion of secrets and promises kept by friends was significantly correlated for both boys and girls to feelings of trust for a given friend and to the strength of that friendship as assessed by level of mutual liking (Rotenberg, 1986). While, these correlations tended to be higher for girls than boys, girls did not report engaging in significantly more secret sharing than boys.

### Summary and Conclusions

A fairly large number of characteristics have been found to be associated with friendship and collectively may help define what makes friendship special. First, friendship appears to involve a mutual or bilateral relationship in which expectations apply to both members in a reciprocal fashion. Children spend a lot of time with friends and appear to enjoy these joint activities. For younger children, much of this shared activity involves play. With older children, just hanging around and talking become increasingly important. It appears likely that similarity in age, gender, culture and activity/play preferences, interests and attitudes serve to increase the degree to which two children are likely to enjoy this time together while proximity probably increases opportunities to engage in such joint or shared activity. Friends also like each other and appear to enjoy the time they spend together.

Relatively higher levels of prosocial behavior, mutual support and assistance also typify children's friendships at all ages. As children become older, the intimacy potential of a friend becomes more salient and children appear to be more explicitly aware of the importance of intimacy in friendship. At the same time, children as young as in grade 1 are more intimate with friends than non-friends. Trustworthiness in terms of the ability to keep secrets and promises also appears to be an important characteristic of friendships for pre-adolescent and early adolescent children. For younger children, loyalty and reliable access as a playmate appear to be the most important determinants of trust. Perhaps the most widely acknowledged and yet least understood characteristic of friendship, in terms of its possible relational functions, is mutual positive affect or liking. Despite the fact that mutually positive feelings between friends appears to be universally accepted as a defining characteristic of friendship, little appears to be known about the function of these feelings within friendship.

Generally, the characteristics of friendship for boys and girls appear fairly similar. Girls may be more exclusive in their friendships, more aware of friendship boundaries as well as more resistant to changes in their friendship networks. Girls also appear to place greater emphasis on emotional support and intimacy within these friendships. However, emotional support and intimacy are not absent from the friendships of boys and girls' friendships are not entirely exclusive. Furthermore, other characteristics of friendship such as enjoyment of shared activities, the provision of tangible support and a high level of similarity between friends appear to be equally important to the friendships of both boys and girls.

Most studies which considered actual behavior between friends found evidence for most if not all of the positive characteristics of friendship in the interactions of fairly young children. At the same time, older children generally have a more explicit understanding that friendship involves the characteristics listed above. This finding may be

particularly relevant to the consideration of the role that such behaviors may play in friendship formation. As children become more aware of the relational significance of these characteristics, part of the importance of a given friendly behavior may be that it can serve as a sign of liking and/or friendly relational intent. The findings relevant to conflict management and friendships might also be interpreted as providing further support for this hypothesis. Many of the behaviors that seem to typify between conflict between friends such as the provision of explanations, the willingness to compromise, greater flexibility in negotiation and deferred promises may help restore or maintain a positive interpersonal climate through the communication of liking or an interest in that relationship. This issue, of the role of the communication of liking and friendly relational intent to friendship formation and maintenance will be explored further in a later chapter.

Finally, the fact that a given characteristic, behavior, activity, etc. is typically associated with friendship, either in children's minds or in observations of actual behavior, does not provide any elaboration of the role such characteristics might play in friendship formation and/or maintenance. Any given characteristic may be as much the consequence as the determinant of friendship. As Gottman (1983) notes, some features of friendship such as high levels of shared activity and decreased social inhibition may be primarily the result of the higher levels of familiarity that usually exists between friends. Thus, clarification of the role that any particular friendship characteristic plays in the formation of such relationships requires further study of the actual processes involved in friendship development, an issue which will also be addressed in a later chapter.

## CHAPTER TWO

### Importance of Friendship

#### Overview

As noted in the previous chapter, close mutual friendship and general peer-group status may represent fairly different aspects of children's peer relations. Thus, it would seem important to consider whether such close friendships have a developmental significance that can be distinguished from the impact of general peer-group status. Much of the literature concerning the developmental contributions of friendship appears to be based on a theoretical linking of documented characteristics of friendship to their most likely developmental consequence. However, there are data emerging which suggest that such conceptual arguments regarding a special developmental role for friendship in development are valid. In the following sections, both conceptual arguments and empirical data, where available, are considered.

#### Areas of Potential Developmental Significance

Cognitive development. Considerable attention has been given to the potential role that peer interactions play in the development of cognitive abilities. Essentially, it has been argued (e.g., Hollos, 1975; Piaget, 1965; Youniss, 1980 cited in Asher & Parker, 1989). that in contrast to typical parent-child relationships, children's relationship with their peers are egalitarian rather than hierarchical in nature. As a result, greater opportunity should be afforded in interactions with peers for any child to discuss and explore the viewpoints of the other person. Such dialogue is then felt to facilitate the development of

the ability to understand the perspectives of other person and contribute to the decline of egocentric thinking.

There is some evidence to suggest that interactions between close friends may more closely approach this ideal egalitarian model than interactions involving non-friends. Nelson and Aboud (1985) compared problem solving between close friends and non-friends and found a higher frequency of both explanations and criticisms of the other's viewpoints between friends. Furthermore, interactions between friends appeared to lead to cognitively more mature solutions. Children with close friends have also been found to score higher in terms of both affective and cognitive perspective taking than do children who do not have such close friends (McQuire and Weisz, 1982). This advantage was not dependent on the overall peer-group status of these children. While the correlative nature of the data in this last study prevent unambiguous causal inferences, these results are consistent with those of Nelson and Aboud in suggesting that close friendships may represent an important source for the stimulation of cognitive development.

Encouragement of exploration and experimentation. Several authors (e.g., Asher & Parker, 1989) have suggested that in early and middle childhood, children's peers begin to function as secure bases for exploration in much the same way that parents do for infants and toddlers (Sroufe, 1979). This function may be particularly relevant in pre- and early adolescence when children experience fairly dramatic psychological and physiological changes (Berndt, 1982). At this time, friendship may represent an important source of information relevant to the issues facing adolescents (Fine, 1981). In addition, the provision of security and support by friends may encourage exploration of adult roles (Asher & Parker, 1989; Bukowski & Hoza, 1989; Fine, 1981; Hartup & Sancilio, 1986; Price & Ladd, 1986). Finally, sharing and helping one another represent almost obligatory friendship expectations throughout childhood (Ritchey & Ritchey, 1980 cited by Asher &

Parker, 1989). This provision of tangible assistance and advice may be one of the ways that friendship may function to reduce anxiety and facilitate exploration as children expand their social repertoires and begin trying on new roles. Considering the above arguments, it would seem likely that close friendship may be developmentally very important in situations where children must explore new roles and/or expand the range of situations in which they can operate comfortably. To date, however, there does not appear to be any empirical confirmation that children without close friends are uniquely disadvantaged in this respect.

Social development. Closely related to the provision of security and encouragement of exploration is the argument that close friendship provides a forum for the development of relationship/social skills (Bukowski & Hoza, 1989). As noted earlier, level of intimacy is one of the distinguishing features of close friendship, especially in pre- and early adolescence. Thus, it would seem reasonable that such friendships may provide a unique opportunity to develop intimacy skills (Berndt, 1982; Furman & Robbins, 1985). In particular during late childhood and early adolescence, such close friendships may provide relational experiences critical to the development of the interpersonal trust that permits someone to engage in such close intimate relationships (Sullivan, 1953 cited in Asher & Parker, 1989) as well as to become more aware of the implications/functions of affect within such close relationships (Parker & Gottman, 1989). There is also evidence to suggest that such close sharing/intimacy is present in the close friendships of younger children as well (see Chapter 1) and so it would appear that throughout most of childhood close friendship may provide the opportunity for children to learn how to be intimate (Asher & Parker, 1989).

Finally, the importance of friendship experiences to the social development of children may go beyond fostering the development of intimacy related interpersonal skills

since friends may also provide an important source for the transmission of social norms (Fine 1981). Again, however, though such conclusions are logically consistent with findings regarding the characteristics of close friendship, further research is necessary to clearly delineate the contributions of close friendships to social development.

Self-esteem enhancement / ego support. Friendships may also be important to the development of healthy self concept and self understanding (Asher, Parkhurst, Hymel & Williams, in press; Bukowski & Hoza, 1989). For one thing, friends tend to seek support, validation and assistance from each other. Since these transactions imply respect for ones opinion and advice, these interactions are believed to be intrinsically validating (Asher & Parker, 1989; Berndt, 1982). Supporting this contention, Mannarino (1978) found that grade-6 children who had close friends had higher levels of self-esteem than did children without such close friendships. Similarly, Bukowski, Hoza and Newcomb (1987) found early adolescents with friends to have more positive self-concepts than classmates who were not involved in such close friendships.

Close friendships may also provide a context for trying on/displaying various self images/roles thereby fostering self-exploration (Fine, 1981). Finally, while there seems to be a need for further validation of the importance of friendship experiences to self-esteem and ego development, it would seem that this role is highly consistent with other literature indicating that friends both expect and provide higher levels of support and validation than do non-friends (Asher & Parker, 1989).

Emotional development. Close friendships may also be an important source of affection (Asher & Parker, 1989), nurturance (Furman & Robbins, 1985) and emotional security (Hartup & Sancilio, 1986; Price & Ladd, 1986). Friendship may also provide a forum for developing skills in managing emotions and interpreting emotional experience

(Parker & Gottman, 1989). These researchers observed the interactions of children at various ages and on the basis of these observations, proposed three stages in which the contributions of friendship to social-emotional development varied. In early childhood (ages 3-7) children are faced with the task of learning how to interact without being overwhelmed by their immediate emotional experiencing. They must learn to delay gratification, handle frustration and regulate emotional arousal within play so that they can synchronize such play activity with their friends. As a result, much of the conversation between friends at this stage centers on role negotiation and conflict resolution. In middle childhood (ages 8-12), presentation of, versus management of affect becomes increasingly important. The impact of public display of affect is increasingly emphasized in friendship through the exchange of information regarding social norms, discussion of others in the peer group etc. By late childhood and adolescence (ages 13-18), there is again a shift in emphasis with the focus of the friendship relation increasingly becoming the understanding of the implications of affect within close relationships as well as increased self-understanding versus the emphasis on public presentation in middle childhood.

Provision of companionship and stimulation. Friends typically enjoy each other's company and derive considerable fun and entertainment from these relationships (Asher & Parker, 1989; La Gaipa, 1981). They also can be counted on to provide reliable companionship and alliance (Furman & Robbins, 1985) since friends are expected to be accessible and loyal (Asher & Parker, 1989; see also Chapter 1).

Conflict resolution skills. Although this contribution does not appear to have received much attention, there already exists evidence suggesting that more effective strategies for resolving conflicts and differences may be used when those conflicts involve close mutual friends (see Chapter 1). It may therefore be the case that friendship experi-

ences provide a significant opportunity for practicing and developing such skills.

#### Relative Contributions of Friendship Versus Popularity.

There is already a fairly large body of literature indicating that the quality of peer relations in general predicts a large variety of psychological, educational and career outcomes. (See Parker & Asher, 1987 for a review). Similar documentation of the long-term implications of chronic friendlessness remains to be accomplished (Ladd, 1984). However, considering the foregoing discussion, it would seem that friendship experiences may have the potential to facilitate development across a number of areas. Furthermore, several researchers have argued that there may be important differences between popularity and friendship in terms of developmental contributions as well as important areas of overlap (e.g. Bukowski & Hoza 1989). Children's needs for affection, reliable alliance and intimacy may be best met in the context of close friendships. At the same time, both a close friend or the larger peer group may be important sources of instrumental aid, nurturance, companionship and enhancement of self-worth. In other words, being either well accepted or having one or more close friends should allow access to these benefits. In contrast, the need for a sense of inclusion/belonging may be more the result of being generally accepted by one's peers (Furman & Robbins, 1985).

While the conclusion that many of the potential benefits of friendship experiences may be unique to such close relations, has gained considerable support, empirical validation of these arguments appears to have been limited to date. This is perhaps due to the methodological difficulties inherent in tracing variation in numbers and quality of close friendships for specific children over a sufficiently long period of time and chronicling the effects of such variation on development. As a result, the relative developmental significance of close friendship versus popularity is an issue not easily resolved. However, even if many of children's needs can be met by either being well liked/ generally popular or by

having one or more close friends, researchers are increasingly arguing that one does not have to be popular to derive the potential benefits of positive peer relations (e.g., Asher & Parker, 1989; Furman & Robbins, 1985). Indeed, Buzzelli (1988) found that children in grades 2 and 5 who were either well liked generally or who had at least one close friend were equally trusting of peers. Only children who were both generally disliked and had no close friends appeared to be less trusting of peers. Thus, in this case, both positive peer group status and/or the experience of at least one close friendship appears to likely contribute to the development of interpersonal trust. Further evidence in support of the conclusion that even having one close friend may be sufficient to access many of the potential benefits of positive peer relations can be found in the finding that early adolescents with one friend were not significantly lower in terms of self-concept than those adolescents who had a greater number of close friends (Bukowski, Hoza & Newcomb, 1987 cited in Bukowski & Hoza, 1989). In contrast, the same study found that adolescents those with no such close friendships did report lower self-concepts.

### Summary and Conclusions

Increasingly, researchers are coming to realize that the potential developmental contributions of positive peer relations are derived not only from being generally well accepted by one's peers but also from the experience of close friendship. Such friendships may stimulate cognitive, social and emotional development in a variety of ways. They appear to be important sources of nurturance, support, assistance, validation, companionship and stimulation. While some of these benefits may be obtainable in the context of less intensive peer relationships, children's need for intimacy, reliable alliance and affection may be more likely to be met within close friendships. Furthermore, increasingly there is evidence that involvement in even one mutual close friendship may mitigate the potentially negative effects of not being widely accepted by one's peers. For all of these

reasons it would seem that friendship experiences are important to children. If so, interventions designed to enhance friendship would seem to potentially represent an attractive alternative to traditional social skills training which has focused on improving overall peer acceptance. The implications of such a focus on friendship enhancement will be evaluated in a later chapter.

## CHAPTER THREE

### Relational Communication and Friendship Formation

#### Overview

Chapter 1 considered the essential features of children's friendships. However, the elaboration of such characteristics only indirectly addresses the issues of why and how children become friends. The goal of this chapter is to examine more closely this friendship formation process. In order to do so, a distinction will be made between initial decisions to pursue any friendship (friendship selection) and the process through which this decision is converted into action (friendship development). This distinction between friendship selection and actualization permits separate consideration of how relatively passive factors such as proximity or similarity may influence selection and the more active behavioral pursuit of such friendship (Bell & Daly, 1984). This is not meant to imply a simple two-stage model in friendship formation. In all likelihood children's evaluations regarding the desirability of any peer as a friend may be reconsidered in the light of ongoing experiences with that peer. However, since friendship is a voluntary association (Bukowski & Hoza, 1989), it would seem important to examine separately those factors influencing friendship selection. This is done in the first part of this chapter. Following that section, the focus shifts to what is known about how friendships evolve. Here, particular emphasis will be given to the role that the communication of liking and interest may play in this process.

#### Friendship Selection

One fairly direct method for studying factors influencing friendship selection

would be to measure various attributes of children prior to any social interaction between them and then to trace the impact these attributes have on subsequent friendship choices within that group. This research design does not appear to have been widely used with children. However, in one study the role of physical attractiveness in friendship selection was explored by measuring this variable before enrollment in kindergarten and assessing friendship patterns later in the school year (Krantz, 1987). In this study, a moderately high correlation was found between independent ratings of physical attractiveness and the number of times any girl was chosen as a friend. In another study children in grades 3 and 8 were presented with photographs of two unfamiliar children and asked which one they would most likely want as a friend. Children in both grades, regardless of gender, tended to select the more attractive peer despite the fact that the unattractive peer had been described as being more sociable and more athletic (Zarkin, 1983). Zarkin concluded that physical attractiveness was a social asset and, implicitly, that unattractiveness may be a social liability.

Another way to explore friendship selection is to identify variables associated with existing friendships and then to develop post-hoc explanations for these friendship patterns on the basis of the associated variables. This approach would appear most useful for examining the impact of relatively stable personal characteristics on friendship selection. When such characteristics can vary over time as is the case with social behavior, this research design becomes less useful for studying friendship selection. This is because any observed behavior pattern may be as much a consequent of friendship as it is a determinant (Epstein, 1989).

Perhaps the friendship selection factor that has received the greatest attention using such post-hoc designs, has been degree of similarity between friends. Several studies have compared similarity between friends and non-friends across several fairly static variables (e.g., geographic proximity, age, sex, physical appearance, self-concept, race and

even activity preferences). Generally, these studies have found friends to be more similar to each other than to non-friends (e.g. Clark & Drewry, 1985; Epstein, 1989; Erwin, 1985; Ladd & Emerson, 1984). However, since friends likely influence each other (Epstein, 1989), increases in similarity in terms of activity preferences and attitudes can be expected in friendship (Epstein, 1989; Kandell, 1978; Schunck, 1987). In addition where the characteristic is more subjective (such as in judgments regarding level of ability, attitudes and internal characteristics such as sensitivity) friends may tend to over-estimate the degree of similarity present between friends and/or underestimate similarity to non-friends (e.g., Billy et al, 1984; Epstein, 1989; Tesser et al, 1984).

Despite these limitations, there appears to be fairly reasonable grounds for expecting similarity to increase the attractiveness of any peer as a potential friend. For one thing, some of the variables studied are relatively static (e.g., culture, race, neighborhood). In addition, similarity on these and other variables such as attitudes and interests likely reduces conflict, increases mutual reinforcement, self-confirmation and even the self-esteem enhancement potential of the other child (Epstein, 1989; Tesser et al, 1984). Even similar activity interests will likely increase proximity especially during extra-curricular activity periods. For all of these reasons, similarity may provide a fairly good post-hoc explanation of many existing friendship patterns though none of the research cited here actually tested whether level of similarity before relationship formation actually predicts who will subsequently become friends.

Another approach that has been used to identify factors in friendship selection has been to consider the functions of children's friendships and then to try to develop a theory explaining how these functions might influence selection. For instance, Asher & Parker (1989) argue that in early childhood (ages 3-7) the primary goals within friendship are the maximization of excitement, enjoyment and affect levels in play. At this age, a peer's potential as a playmate and their ability to co-ordinate play activity with another

child should strongly influence friendship selection. By middle childhood (ages 8 to 12) the goals in friendship shift to ensuring inclusion in a peer network and maintaining social position within that peer group. Thus, exclusion and inclusion become important concerns and children should tend to seek out friends who are loyal and who share similar perspectives on the peer group. In adolescence, there is increasing emphasis on self-exploration, intimacy and emotional support within friendship. As a result, characteristics such as sensitivity and willingness to share/disclose information should become more salient to the friendship selection process (Parker & Gottman, 1989).

Extending the arguments of Parker and Gottman (1989), one might expect the ability to engage in any pattern of interaction typically associated with friendship to enhance the attractiveness of any child as a potential friendship target for his/her peers. Since, many of the characteristics of friendship in children involve various types of positive social transactions (e.g., provision of tangible and emotional support), a child's willingness or ability to engage in such behaviors may increase their attractiveness as a potential friend. However, in order to confirm this possibility, more information would seem necessary concerning the actual friendship selection process.

At the same time, some tentative conclusions may be possible given the evidence currently available. First, many of the variables identified as potential factors in friendship selection appear to involve relatively stable factors such as proximity, availability, age, gender, culture, activity interests, attitudes. Even physical attractiveness and level of ability may influence friendship choice. As a result, some children may possess certain non-behavioral assets that will increase the likelihood that other children will seek them out as friends. Similarly, other children may be disadvantaged in the friendship 'lottery' not because of their social behavior but because of these same non-behavioral selection factors. This does not necessarily mean that nothing can be done to alter the attractiveness of a given child as a potential friend. For one thing, both parents and teachers can

influence the accessibility of a child as a friend by increasing that child's functional proximity to other peers (Epstein, 1989). In addition, increasing children's willingness and ability to engage in behaviors generally associated with friendship may also enhance their attractiveness as a potential friendship target.

### Friendship Development

As was the case with friendship selection, the process of friendship development in childhood has not received as much attention as has the identification of the characteristic features of friendship. Perhaps the most intensive investigation in this area has been a study conducted by Gottman (1983). In this study, children aged 3 to 9 were paired with a previously unfamiliar peer for three play sessions in the home of one of the two children. Progress toward friendship was operationalized in terms of the proportion of agreements between the guest and the host child in their conversations. This criterion variable was then used to distinguish between children who "hit it off" over the three play sessions and those who did not. Differences in conversational sequences typical of these two groups were used to identify several interactive processes each of which appeared important in determining the quality of ongoing interactions.

The first process was play which included considerable information exchange for the purpose of exploring similarities and differences as well as establishing common ground activities. Such common ground activities could involve varying degrees of joint play ranging from loose parallel play to highly co-ordinated joint fantasy play. Successful movement between levels of play required negotiation and synchronization. Children who failed to hit it off tended to be less successful in their information exchanges and even when successful, were less likely to move to common ground activities but rather tended to move more often toward conflict and continued exploration of differences.

Furthermore, when children who failed to hit it off did establish common ground activities, these activities were often disrupted by unsuccessful attempts to escalate the intensity of this joint play.

Another important process identified by this study was the repair process in which common ground or joint play activities could be de-escalated, messages clarified and/or conflict resolved. This repair process appeared to be important for maintaining or re-establishing satisfying interactions. Failure to successfully repair, regardless of friendship status, increased the probability of continued conflict and further reduced the intensity of joint/friendly activity. Furthermore, the greatest difference between children who hit it off and those who did not was not so much how they handled conflict but rather the amount of time spent in conflict.

Beside play and repair, Gottman identified a third interactive process which he labelled self-exploration. Within this process, gossip and self-disclosure served to increase intimacy and further exchange of personal information. Success with which children managed the interactive demands within each of these interactive process appeared to influence the prevailing affective tone of interactions within any dyad. As a result, children who "hit it off" spent more time in what Gottman termed a state of amity typified by expressions of positive affection, enjoyment, support, sympathy and approval. In contrast, children who failed to hit it off spent more of their time in the state of conflict. In order to enjoy each other, children need to develop mutually satisfying joint activities. In addition, they must be able to deal with differences when these arise so that a state of amity can be restored. Failure to collectively meet these complex social management demands resulted in a greater proportion of time spent in less satisfying interactions and reduced the likelihood that any two children "hit it off". (Gottman, 1983).

This study makes an extremely valuable contribution to the understanding of friendship formation through demystifying the affective states of amity and conflict as well

as identifying social processes and social management tasks that must be met if positive interactions are to prevail between two children. At the same time, this study is not without limitations. The criterion for 'hitting it off' was the proportion of conversational sequences in which the guest child agreed with the host child. This criterion may not capture all aspects of friendship and may generate two groups whose greatest differences are in the amount of time spent in conflict. Second, this study only partially answers the question of why children who failed to hit it off were unable to solve the above social management tasks. In addition, three one-hour play sessions probably does not represent the normal time-span for friendship evolution. Perhaps even more importantly, from the perspective of this dissertation, children did not select whom they wished to be paired with. As a result, this study might be best treated as an investigation into interactive processes important to the establishment of satisfying play rather than a study of the evolution of friendship within the natural peer-group environment.

Even interpreted in this way however, the contribution of this study appears to be significant since the ability to engage in mutually satisfying play is likely important in friendship development. Indeed, the importance of ongoing satisfying interactions to friendship formation was further demonstrated in a subsequent experimental manipulation of these same interactive processes using a talking doll (Parker, 1989). In this study, the degree to which this doll communicated with participating children in a connected fashion, was responsive to and interested in what these children had to say etc. was related to how much children enjoyed these sessions as well as to whether children were willing to revisit this talking doll.

Another research strategy that appears to hold some promise in the study of friendship formation processes is to ask children to report on the critical incidents which they feel have influenced the development of their own friendships. This design was employed by Foster et al (1986) with children in grades 2, 5 and 8. In this study, the

following incidents were most frequently mentioned as leading to increases in liking for another classmate: the giving or loaning of an object to them by another child, receipt of unsolicited favors, a peer's compliance with a request, and being included in an activity or conversation by that classmate. All of these behaviors have some relationship with characteristics of friendship discussed earlier in chapter 1. Furthermore, most of these incidents were reported to have occurred with classmates who were currently close friends with the reporting child(ren). Thus, these results suggest that engaging in behaviors that are associated with friendship can influence levels of liking within friendship. If so, such features may not simply be characteristics of such friendships once these have been established but may also influence level of liking and friendliness within such relationships. Engaging in negative or aversive behaviors appeared to have the opposite effect (Foster et al, 1986).

The above study did not address the issue of why these critical incidents influenced liking. However, there is some evidence to suggest that one of the reasons why these behaviors may influence friendship development and/or level of liking may be because these behaviors can convey liking or perhaps confirm the existence of a friendship relationship. For instance, Kahn and Turiel (1988) found that children ages 8 to 11 reported that they would be more upset with a close friend who lied or failed to provide emotional support/companionship or who came to their party wearing unconventional dress, than if a casual acquaintance had done the same things. Furthermore, when children of this age were asked to explain why they would be more upset with a friend, the most frequently cited reason was violation of a friendship norm. In contrast, children aged 6-7 tended to report that they would be equally upset regardless of whether these incidents occurred with a close or a casual friend. Thus, for younger children the impact of a given behavior appears to be primarily due to the reinforcement value of the behavior itself. As noted in Chapter 1, by age 8 children may be more aware of the relational

significance of various behaviors and this significance may mediate the impact of these behaviors. If this argument is valid, many prosocial behaviors may derive some of their social/relational impact from their ability to signal liking or friendship.

Moreover, such an interpretation may help account for the finding that children report aversive behaviors to have had a greater negative impact on a relationship involving an already disliked rather than a liked peer. Similarly, prosocial behaviors were reported to have had greater positive impact on relationships with already liked peers than with less liked classmates (DeLawyer & Foster, 1986). As in the Kahn & Turiel (1988) study, this difference in relative impact does not appear to be easily explained solely by the reinforcement potential of these behaviors since the behaviors being considered were the same for both liked and disliked classmates. If positive behaviors from liked peers and negative behaviors from disliked peers are more readily interpreted by children as indicators liking, the above pattern of results might be considered to provide some support for the importance of relational communication in children's peer relationships. However, while these results are suggestive, this study did not include documentation of whether the impact of the above behaviors was actually due to the relational communication involved since the impressions conveyed by these behaviors was not one of the variables studied.

Another way in which friendly behaviors may be important to friendship formation is because, through a norm of reciprocity, they may increase the likelihood of the other person emitting similar behaviors and thus, create an escalating climate of friendliness. Evidence for such reciprocity can be found across a number of studies. For example, Hoier and Cone (1987) varied the frequency of compliments, and sharing directed by 2 nine year-olds toward other children and found collateral (reciprocal) increases in the frequencies with which these other children directed similar behaviors toward these confederates. Further evidence for reciprocity in positive behaviors has been found by Krishnan (1988) who found a moderately strong relationship between the amount

of letter sharing one child did in a first trial of a word-making task and the amount of sharing the second child engaged during the following trial when he/she had the surplus of letters. Similarly, a high level of correspondence has also been found between both positive and negative behaviors received and distributed by kindergarten children (Kohn, 1966) and preschoolers (Furman and Masters, 1980). Finally, although absolute level of sharing was not influenced by the type of altruistic model observed, children directed more of their sharing to the a model who had shared with them if that model had only been observed sharing toward others (Harris, 1970).

Summarizing the foregoing, it would seem that positive prosocial behaviors, particularly those involving transactions typically associated with friendship, may play an important role in the friendship formation process. This role may be due to several different reasons. First, such behaviors may act as positive reinforcers encouraging continued interaction. Second, through the norm or expectation of reciprocity, these behaviors may stimulate similar positive behaviors from the initial recipient, creating an escalating cycle of friendliness. Third, these behaviors, in conveying liking or interest may stimulate a similar response that cannot simply be explained by the reinforcement value of a given behavior or tendency to reciprocate similar behaviors. It is the possibility, that relational communication may have a direct role in friendship formation, to which we now turn.

#### Relational Communication and Friendship Development

In considering adult friendships, Bell and Daly (1984) describe the development of such close interpersonal relationships as an active process of trying to get others to like you and to feel positive toward you. For these authors, such affinity seeking behavior signals a positive interest in the other person. This, in turn, was believed to stimulate the development of greater closeness in that relationship. In contrast, polite and/or neutral

behaviors would signal decreased affinity seeking and thus stimulate disengagement. Given this model, it would seem that two questions may be highly relevant especially in the early stages of friendship development. These are: "Do I like the other person?" and, "Does this other person like me?" In fact, Snodgrass and Rosenthal (1985) found that adults not only were fairly sensitive to other people's feelings toward them but also that there was a strong correlation between any subject's impression regarding how much another person liked them and how much this subject liked that person. Similarly, in a study involving children, a strong positive relationship was found between any child's impressions of another peer's liking for him/her and the degree he/she liked this other classmate (Murphy, 1986b). While such findings are consistent with the model that the communication of liking and interest may be an important part of the relationship formation process, neither study involved systematic manipulation of these impressions. Thus, no definitive attribution of any causal relationship between communication of liking and level of liking reciprocated can be made on the basis of these results.

These results, however, are consistent with the argument made earlier that one of the reasons why prosocial behaviors may influence the development of children's friendships arises from the ability of these behaviors to convey liking or an interest in developing or maintaining a friendship. In order to examine this possibility more closely, it is necessary to consider studies that examine how such relational communication takes place and, whether the communication of liking and/or interest, when it does occur, can influence the feelings of the other member of any dyad.

How relational communication occurs. How impressions of liking are created or conveyed is a very complex issue. Theoretically, all interpersonal behavior may have the potential to convey feelings, attitudes and goals concerning a given relationship (Burgoon & Hale, 1987). In addition, as these authors note, there appears to be many different kinds of relational information that can be communicated beside level of liking or

interpersonal closeness desired. For instance, Burgoon and Hale (1987) were able to reliably differentiate dimensions such as control (dominance-submission), and accessibility (inclusion-exclusion) from liking (affection-hostility). Further complicating the study of such interpersonal communication is the fact that many behaviors may take on different significance depending on the current state of the relationship. In one study (Wellens, 1987), the relational context for dyads involving undergraduate students was manipulated by varying the level of (perceived) attitudinal similarity and level of (perceived) disliking/liking between subjects and an experimental confederate. In the high agreement/liking condition subjects responded to sustained eye contact with decreased heart rates. Under the high disagreement/disliking condition, subjects experienced increased heart rates in response to high levels of eye contact by the confederate. These results were interpreted as an indication that eye contact could either signal interpersonal challenge or liking depending on the social context. In another study, also involving undergraduates (McAndrew, Gold, Lenney & Ryckman, 1984), the impact of non-verbal immediacy behaviors such as touching, maintaining proximity, smiling and eye contact also varied according to the interpersonal context in which these occurred. When these behaviors occurred in situations of interpersonal conflict, a negative response was elicited from subjects in terms of decreased visual regard of the other person. In contrast, under the positive interaction/high attitudinal similarity condition, these same non-verbal behaviors resulted in increases in visual regard on the part of subjects.

Somewhat similar results have been found in a study of children's interpretation of the behavior of peers as these are influenced by the current state of the relationships (Hymel, 1986). In this study, children in grades 2, 5 and 8 were given hypothetical vignettes involving classmates they either liked or disliked. Results indicated an interpretive bias such that positive behaviors were more likely to lead to dispositional attributions when these involved liked peers whereas negative behaviors were more likely to lead to

dispositional attributions for disliked classmates. Though this study does not directly address the issue of whether current level of liking can influence children's interpretation of the relational significance of any interaction, it does show that children's interpretation of classmates' behaviors can be shaped by relational factors.

Given these findings indicating that people may filter or interpret the relational messages they receive, the question arises as to whether aspects of relational communication can be reliably assessed and which behaviors can be used to do so. Much of this research has involved adults and has focused on fairly subtle verbal and/or non-verbal behaviors such as body position and eye contact (e.g., Eckman, 1965; Maxwell, Cook & Burr, 1985; Trimboli & Walker, 1987). Generally the results of these studies indicate that even fairly small differences in non-verbal behavior can lead to reliable distinctions between level of liking in observed dyads (e.g., Eckman, 1965). This led Eckman to conclude that such non-verbal behavior especially if combined with other information such as instrumental acts, could permit fairly reliable inferences to be made regarding whether the other person is indeed interested in a close relationship versus being distant, detached and withdrawn. In another study, manipulation of subjects feelings toward an experimental confederate led to systematic changes in the amount of eye contact maintained by these subjects again suggesting that such non-verbal behaviors may be valid indicators of interpersonal feelings (Exline & Winters, 1965). Furthermore, Guardo (1967) found that grade 6 children consistently used physical proximity as a cue in inferring level of friendship and indicated a greater willingness to maintain close physical proximity with peers they reported liking more, suggesting that non-verbal behaviors may convey important relational messages even for children.

At the same time, Maxwell et al (1985) argued that people can mask affect and that non-verbal behavior can be shaped by other factors besides feelings toward the other person involved in that interaction. In addition, people may not necessarily attend to all

of the relational cues available and often pay greater attention/weight to behaviors that represent incongruencies in the overall relational message (Trimboli & Walker, 1987). Such results suggest that while liking and interest can be reliably conveyed by both verbal and non-verbal behavior, such relational communication involves, as do all forms of communication, both a sender and a receiver. Thus, the receiver must interpret the relational significance of any interpersonal behavior or incident. As a result, errors in interpreting relational 'messages' are possible.

Another consequence of the fact that relational communication involve two people is that it may prove difficult to generate a pure manipulation of such communication. Simply manipulating the behavior of the 'sender' of any relational 'message' will not necessarily ensure that the intended communication is received by the other person. At the same time, most studies in which adult judges have been asked to infer liking based on a fairly restricted set of immediate verbal and non-verbal behaviors (such as eye contact, intensity of conversation) have generated reasonably reliable and accurate assessments of the status of a given interpersonal relationship. It would also seem likely that, when more directly involved in an ongoing relationship rather than acting as third party observers, people's assessments of the feelings of the other person toward them could prove to be even more accurate despite the potential for errors in inference discussed earlier. In fact, Murphy (1986b) found that children in grade 5 were surprisingly accurate in their predictions concerning how much various classmates liked them.

There is also evidence which appears to support the earlier argument that failure to meet expectations regarding what someone does for and with a friend may also be a powerful conveyor of liking and/or an interest in friendship. For example, according to the social penetration theory of Altman and Taylor (1973), one consequent of the disclosure of personal or private information is that it acts to signal to the other person the level of intimacy desired. Since there is a strong norm of reciprocity regarding level of disclo-

sure within a given relationship, failure to reciprocate at the same level of intimacy may indicate an unwillingness to pursue that relationship at that level of intimacy. As a result, the relationship should tend to move toward a less intimate level of personal information sharing. With children, this model has received some empirical validation. First, the level of intimacy children report in their friendships has been found to predict the degree of stability in these friendships (Berndt, Hawkins and Hoyle, 1986). In addition, grade 6 children have been found to be more likely to infer friendship in taped dyadic interactions when there was a reciprocal level of disclosure even when this reciprocation involved fairly superficial information (Rotenberg & Mann, 1986). In contrast, failure of one dyad member to reciprocate a more intimate disclosure from the other dyad member led to inferences of lower levels of friendship in that dyad. Similar results have been reported by Bukowski and Kramer (1986) who found that level of intimacy, sharing and helpfulness between characters in hypothetical vignettes influenced children's judgments regarding the level of friendship between these characters.

Friendly or prosocial interactions may not be the only context for relational communication. In fact, many of the differences between the conflicts/disagreements between friends and non-friends (see Chapter 1) could be interpreted in terms of relational communication. For instance, children when declining to share something with a friend are also more likely to promise to meet a request later than they are with a non-friend (Jones, 1985). These explanations and deferred promises may function as a reassurance that this refusal does not signify a lack of liking or an unwillingness to meet friendship obligations. Similarly, friends tend to make less excessive demands and are more willing to negotiate than are non-friends (Gottman, 1983; Hartup, 1989). Both of these features would also seem to potentially signal interest in the other.

Impact of communicating liking. In order to assess the impact of communicating liking and/or interest, it would seem important to measure, and ideally manipulate, both

this communication and changes in the feelings of the receiver of such messages toward the first person. In one study (Ho & Mitchell, 1982), impressions of interpersonal warmth that undergraduates received from a tutor were systematically manipulated by varying the amount of smiling, nodding, eye contact and physical proximity for this tutor. Students who received tutoring from the 'warm' tutor responded with higher levels of eye contact, head nods, smiles and reported liking the tutor more. Under conditions of less warmth, subjects engaged in significantly more frowning, leaning away from the tutor and reported greater disliking for the tutor. These results suggest that the affective/relational stance of the tutor did have a direct effect on the behaviors and feelings of subjects toward this tutor. However, since subject's impressions regarding the level of liking of the tutor for them was not directly measured, it cannot be established whether the effect of the tutors' behavior on level of liking of the subjects was due to relational communication. This may be a particularly important given the fact that the context for these interactions was a highly functional one in which tutor behavior may have influenced student's levels of confidence since behaviors defined as 'warm' could signal approval in terms of task performance. At the same time, these results do suggest that behaviors that other researchers (e.g. Eckman, 1965) have argued are likely to function as conveyors of interest and liking can stimulate increased liking on the part of those receiving these behaviors.

There are also conceptual reasons for expecting relational communication to play an important role in relationship formation. For example, Kafer (1983), building on the theories of Argyle (1978), argued that relational communication is essential to the process of negotiating an interpersonal attitude that reflects each child's orientation to and feelings regarding that relationship. Such relational information should allow members of any dyad to synchronize their behavior and generate mutually reinforcing interactions. If true, such relational communication may play an important role within the friendship development sequence identified by Gottman (1983) in which the ability to synchronize play and repair

processes appeared to be important for the maintenance of mutually satisfying interactions and the affective state of amity. This state of amity, in turn, appeared to be a critical determinant of whether two children "hit it off". Kafer goes on to argue that this process of negotiating an interpersonal attitude involves two skills. One is to emit behaviors that communicate one's inter-personal attitude. The other is to accurately decode the behaviors of the other members in terms of their relational implications.

Evidence in support of these arguments can be found in a variety of studies. For example, children with generally poor peer relations have been found more likely to misinterpret videotaped prosocial or neutral interactions between other children as involving hostile intent than were their more popular counterparts (Dodge, Murphy & Buchsbaum, 1984). In addition, interpretation of the relational intent of the other child appeared to be an important factor determining the responses that all children, regardless of peer-group status, reported they would likely emit in these situations. Generally children reported that they would likely respond to hostile acts in a reciprocal fashion. Similarly, for incidents interpreted as involving prosocial or neutral intent children, regardless of peer-group status tended to state that they would respond in a non-punitive fashion. These results suggest that perception of relational intent does appear to have the potential to shape the subsequent response of the child receiving this relational message. If so, teaching children to notice the relational information conveyed by others' responses to themselves as well as the relational information conveyed by their own behavior would seem to be important relational skills that might serve as a focus for social skills training (Hills, 1985).

Interestingly, several studies suggest that inconsistency in friendship conceptions or failure to appreciate the relational significance of various behaviors may predict the quality of peer relationships for any child. For example, Shannon and Kafer (1984) found that, unlike other peers, children who were highly disliked, unlike other children, did not view trust as an important component of friendship. In addition, Oppenheimer and

Thijssen (1983) found that failure to appreciate the reciprocal nature of friendship differentiated between popular and unpopular children. Similarly, Pellegrini (1986), looking at consistency and maturity in children's understandings of friendship, argued that children who are inconsistent in terms of level of friendliness may be particularly frustrating to their peers and thus perceived more negatively. Certainly, such interpersonal inconsistency would make it more difficult for peers to evaluate the interpersonal feelings of such children. Just as failure to appreciate the relational significance of different behaviors could lead to relational miscommunication, inconsistent behavior may also interfere with this communication process.

In another study, Vogel, Keane and Conger (1988) compared conversational behavior of rejected and accepted children with the express aim of assessing the degree to which these children's communicative behaviors conveyed an interest versus disinterest in what the other child had to say. These researchers found that, compared to their less liked counterparts, well accepted children displayed relatively more interest by asking relevant questions, answering questions in a relevant manner and by making statements that were related to the other child's statements. In contrast, rejected children engaged in behaviors that were more likely to convey disinterest through irrelevant questions, unrelated comments and interruptions. These authors concluded that (p. 62) "the communication of listening and interest, as a conversational skill does vary among children in this age group" and that such communication could be considered "a potential component of social skill". This study, however, did not consider the impact of such communication of interest on the feelings of the other child in these new dyads. In addition the communication of conversational interest is not identical to the communication of liking and/or an interest in friendship.

Another way in which relational communication may be important in friendship is by facilitating conflict resolution. For instance, one of the reasons why conflict

episodes involving friends do not inevitably lead to the dissolution of such friendships may be that the behaviors friends tend to emit in such situations (see Chapter 1) probably serve to reassure the other person that the first child remains interested in maintaining the friendship (Hartup, 1989). This, in turn may leave the second child more amenable to efforts to resolve such conflicts. The net effect is that the relationship is affirmed through the conflict resolution process leaving the relationship even stronger (Rizzo, 1987 cited in Hartup, 1989). A similar argument has been advanced in the context of adult relationships (Donohue, Weider-Hatfield, Hamilton & Diez, 1985). These researchers argued that the use of 'liking' language and positive relational messages was one of the reasons for the high level on creative, integrative solutions in a problem solving task when the problem solving process was less structured, allowing greater emphasis on relationships.

Finally, some further indirect support for the possible social relevance of the communication of liking and interest may be found in the current social skills intervention literature. Although the vast majority of interventions designed to ameliorate children's peer relations have sought to improve overall peer-group status, as opposed to enhancing the development of specific friendships (see Chapter 4), many of the social skills remediated in such interventions could be viewed as involving relational communication. For example, in one study (Cooke, 1974) behavior management principles were used to increase levels of smiling, sharing, positive physical contacting and overall verbal complimenting with peers. All of these behaviors could be viewed as conveying liking toward peers. In another study (Kohler & Fowler, 1985) the target behaviors included inviting others to play and making offers to help. Again these behaviors would seem to carry considerable potential for conveying liking and interest. Indeed, display of positive affection has been a target behavior in at least one intervention study (Keller & Carlson, 1974). However, although many, if not most of the behaviors/skills that have been remediated in social skills training may carry the potential to convey liking, any improvements in peer

relationships stemming from such interventions cannot be unambiguously attributed to the relational communication involved. For one thing, many of the behaviors that may be the most likely to convey liking or an interest in friendship have been mixed with other target behaviors whose functional relevance (e.g., group entry skills) can be more easily explained outside the relational communication model proposed in this dissertation. In addition, even when targeted behaviors have seemed to be fairly directly concerned with the manipulation of impressions of liking none of these intervention studies have included the assessment of such impressions as an outcome measure. This severely limits the degree to which the results of previous intervention studies can be used to support the hypothesized role for the communication of liking and interest in friendship development. In order to address this issue it is necessary to attempt to restrict the set of target behaviors to those which seem to be most important to the communication of liking and interest. It would also seem essential to assess the degree to which changes in social behavior did lead to changes in peers' impressions of liking as well as changes in these classmates' liking for the child(ren) in social skills training. In this way, the interpersonal relevance of communicating liking and interest might be validated using much the same procedures advocated by Gresham (1986) for validating skills important at the level of general peer-group status. To do so, one must first demonstrate the skills deficit, then train to remove this deficit and, finally, demonstrate both an improvement in skill level as well as concomitant improvement in the quality of peer relationships (Ladd, 1985).

### Summary and Conclusions

Research into factors influencing friendship choice and friendship formation in childhood has really only just begun. In terms of selection, a number of fairly fixed personal characteristics such as physical attractiveness, ability levels, age and ethnic background as well as similarity in terms of attitudes and interests may affect the desirability of

any child as a potential friend. At the same time, the ability and/or willingness to engage in friendly behaviors or to provide the other child with some of the 'benefits' of friendship such as tangible and emotional support may also influence selection. In fact, children's own reports regarding the incidents which they felt had shaped the evolution of their friendships indicates that engaging in many of the prosocial behaviors associated with friendship may lead to increased liking and feelings of friendship whereas failure to do so can have the opposite effect. Thus, while it is not a given that simply increasing any child's output of prosocial behaviors will increase that child's attractiveness as a potential friend, changing social behavior may be the most direct way to help children without friends develop some.

In reaching this conclusion, several reasons were considered for the possible role of prosocial behaviors in friendship formation. First, such friendly behaviors likely act as positive reinforcers encouraging ongoing continued interaction. Second, engaging in such friendly behaviors may increase the probability of the other person also emitting similar behaviors due to a norm of social reciprocity. Finally, there appears to be a reasonable amount of evidence suggesting that the social impact of such behaviors is derived, at least in part, by their ability to convey liking and/or an interest in friendship.

Much of the rest of the chapter was spent considering how children might convey these friendly relational messages and why this communication of interest and liking might promote the development of a state of mutual friendship by stimulating a reciprocal affective response from the receiver of this message. First, with both children and adults, a fairly strong association has been found between any individual's impression regarding another person's level of liking for them and the level of liking reported by this first individual for that person. Also, many of the differences in the conflict resolution behaviors between friends and those occurring between non-friends appear to carry the potential to convey liking or an interest in maintaining friendship may, in turn, facilitate conflict reso-

lution. Within the Gottman model of friendship formation, messages of liking and interest in friendship may facilitate the repair process and the smooth return to the interpersonal affective state of amity by highlighting positive aspects of the relationship rather than differences and sources of conflict. In addition, children with generally poor peer relations tend to over-interpret hostile relational intent. Furthermore, these misinterpretations have been found to predict how children reported they would likely respond in various situations. Both findings suggest that relational communication may play an integral role in shaping ongoing interaction sequences.

Still other studies have indicated that failure to display conversational interest or to send consistent relational messages may account for some of the limited quality in the relationships of children who are generally rejected by their classmates. Further evidence for the possible importance of communicating liking can be found in studies involving undergraduates in which behaviors typically associated with interpersonal liking have been shown to stimulate both reciprocation of these same behaviors as well as increased liking on the part of subjects receiving the initial relational 'message'. Finally, many of the behaviors focused on in previous social skills interventions with children could be re-interpreted as involving the communication of liking and an interest in friendship.

Importantly, if the impact of these relational messages are to be assessed it is important that not only are these behaviors manipulated but that the impressions created by these messages be assessed as well as their relational consequences. In most studies, this measurement of these intervening impressions has often been overlooked or has not been relevant to the primary purpose of a that study. In either case, the consequence is that it is difficult to know for sure whether the relational impact of observed or manipulated behaviors were due to their potential to convey interest and/or liking. Thus, though there exists considerable evidence that is consistent with the model that the communication of interest and liking is important in friendship formation in childhood, unequivocal

empirical demonstration of this fact and the assessment of the relative importance of this communication process in friendship formation remains to be achieved. This empirical confirmation of the interpersonal function of such relational communication appears to be clinically relevant since if interventions are to be developed for enhancing friendships, there is a need to identify behaviors, interactive processes important in friendship formation. In doing so, it is not enough to simply identify behaviors/characteristics that are associated or correlated with friendship or to generalize from studies of factors influencing overall peer-group status (Furman & Robbins, 1985; Gottman, 1983). Rather, it is important to study how children actually become and remain friends. In this context, Gottman's (1983) observation that currently little is known about these processes remains almost as true now as it was in 1983.

However, documenting the impact of relational communication may proven challenging. For one thing, there appears to be many ways that such relational messages can be sent including non-verbal behaviors such as the amount of eye contact and verbal behaviors such as display of conversational interest as well as engaging in other prosocial behaviors which children associate with friendship. Second, relational communication potentially involves many dimensions including the conveyance of liking or a desire to become friends. In addition, in order to have any impact, these relational messages need to be interpreted by the receiver who may not necessarily attend to all relevant aspects of the other person's behavior. As a result, achieving a pure manipulation of relational communication would seem difficult. At the same time, children have been found to be surprisingly accurate in their appraisals of other classmates' level of liking for them. This suggests that such communication processes may be reliably manipulated and measured.

The last two chapters in this review consider how to effectively intervene to change children's patterns of relational communication through social skills training and second, how to assess changes in these communication patterns as well as relationship

outcomes that might arise as a result of children's attempts to convey liking and an interest in friendship.

## CHAPTER FOUR

### Friendship Enhancement

#### Overview

The primary purpose of this chapter is to identify the unique demands and advantages of focusing intervention efforts on ameliorating a small set of specific friendships as opposed to overall acceptance in the peer group. First considered will be intervention strategies or techniques most likely to be effective in a friendship oriented social skills program. To this end, some of the extant literature concerning social skills training with children will be reviewed. This literature, which has been concerned primarily with improving overall peer-group status or peer acceptance, will be used to develop a taxonomy for distinguishing between various intervention procedures and to consider the relative advantages of each intervention method. Following this, two other issues will be explored. The first involves the social relevance of social behaviors/skills targeted for improvement in any intervention program. The second focuses on how to improve maintenance and generalization of any treatment gains. The final section of this chapter examines the practical implications of a focus on friendship enhancement in light of the issues raised in previous sections.

#### Choice of Intervention Procedures

While there have been various taxonomies proposed for intervention methods in social skills training (e.g., Conger & Keane, 1981; Gresham, 1986; Ladd, 1984; Wanlass & Prinz, 1982), these techniques generally have been divided into three or four broad catego-

ries. The first category involves operant based techniques in which the child's social environment (social reinforcement contingencies) are manipulated to encourage desired behaviors and/or to extinguish undesirable ones (Ladd, 1984). There are also didactic techniques which include two fairly distinctive but often combined methods: coaching and modeling. Modeling involves observation of adult or peer models to demonstrate new skills or simply facilitate the emission of desired behaviors according to the social learning principles of Bandura (1965). Coaching generally involves greater cognitive emphasis with children receiving instruction concerning both the components of skilled behavior as well as their likely social function (Ladd, 1984; Wanlass & Prinz, 1984). Included in such didactic interventions are programs focusing on improving the social-cognitive component of children's peer-directed behavior. Finally, peer pairing or provision of social experiences to stimulate skill or relationship development has also been used as a method of intervention. Each of these methods are reviewed in greater detail below.

Behavior modification approaches. A fairly wide variety of behavioral interventions have been used to improve children's general peer relations and/or to alter a given child's social behavior. These contingency management programs can be further broken down into four subtypes. Some studies have used positive reinforcement directly with the child to increase a desirable behavior (e.g., Allen, Hart, Buell, Harris & Wolf, 1964; Hart, Reynolds, Baer, Brawler & Harris, 1968; Hauserman, Walen & Behling, 1973). Other studies have attempted to extinguish undesirable behaviors through punishments such as time-outs (e.g., Clark, Rowbury, Baer & Baer, 1973; Firestone, 1976; Sachs, 1973) or response-cost schedules (e.g., Burchard & Barrera, 1972; Iwata & Bailey, 1974; Madsen, Becker & Thomas, 1968). A third variation in behavior modification procedures used in this area has been to involve the entire peer group in the contingency schedule. Sometimes this has involved making group reinforcement contingent on the target child's

behavior (e.g., Alden, Pettigrew & Skiba, 1970; Kazdin & Geesey, 1978; Kohler & Fowler, 1985; Rosenbaum, O'Leary & Jacob, 1975; Walker, Hops & Greenwood, 1981), reinforcing the group to change its behavior toward the target child (e.g., Kandel, Ayllon & Rosenbaum, 1977; Kohler & Fowler, 1985), or reinforcing the whole group but on an individual basis for emitting the specified behavior (e.g., Brown & Elliot, 1965; Serbin, Tonick, & Sternglanz, 1977; Drabman, Spitalink & Spitalink, 1974). A fourth variation in the use of reinforcement contingencies is the use of peers to administer these reinforcement schedules and/or to model desired behaviors (e.g., Cooke & Appoloni, 1976; Egel, Richman & Koegel, 1981; Nelson, Worell & Posgrove, 1973; Sancilio, 1987; Sanders & Glynn, 1977; Smith & Fowler, 1984; Solomon & Wahler, 1973; Strain, Kerr & Ragland, 1981). According to Strain, Cooke and Appoloni (1976), this use of peers as reinforcing agents may be uniquely effective because these peers may be able to both monitor and reinforce the target child more continuously.

The goals of intervention studies applying behavioral modification techniques have been almost as varied as the range of procedures used. A large number of these studies have attempted to increase social involvement and participation (e.g., Allen et al, 1964; Strain, Shores, & Timm, 1974). Other interventions were designed to increase participation while at the same time either promote positive, prosocial interactions or reduce disruptive negative behaviors (e.g., Smith & Fowler, 1984). Finally, some studies have had more specific behavioral goals such as increasing cross-sex co-operative play (Serbin et al, 1977). Even so, very few behavior modification interventions have been designed to develop specific functional skills as opposed to altering levels of broad positive and negative social-behavior categories.

Didactic approaches. The next category of interventions involves the use of some sort of instructional format with the expectation that the 'knowledge' imparted in such training will lead to change in the child's social behavior. In these interventions, the motivational contingencies capable of supporting any changes in social behavior are usually presumed to be already present and this peer reinforcement is expected to maintain any behavioral changes induced via instruction.

Although there is a considerable overlap in the didactic techniques used in instructional/cognitive interventions, these training programs are generally divided into two categories: coaching and modeling (e.g., Gresham & Nagle, 1980; Schneider & Byrne, 1985). In modeling interventions children typically observe a model, usually a peer, engaging in the behavior or skill to be taught (e.g., Csapo, 1972; Evers & Schwartz, 1973; Gottman, 1977a; Keller & Carlson, 1974; Jakibchuk & Smeriglio, 1972; O'Connor, 1969; 1972). In coaching, emphasis is not only on introducing skills but also on teaching concepts related to these skills especially the principles of social interaction which explain the social relevance/function of such skills (Asher & Hymel, 1986; Ladd, 1984). Within such programs the following sequence has been proposed for maximizing skills acquisition (Ladd, 1984). First, suitable motivation and the intent to learn must be established. Then, the skill concept must be defined and concretized in terms of exemplars. In addition, the relevance of the skill and situations where it is likely to be important must be described. Once the child has mastered the skill concept and understands its functional relevance, the child must develop the ability to convert this understanding into skilled behavior through guided rehearsal. To this end, the child initially produces the skill sequence in a relatively protected or undemanding environment, usually with an adult instructor who often models the behavior/skill. This skill is then generalized and refined by having the child engage in this behavior/skill in situations with higher performance

demands and, eventually, in the natural peer group environment. Through this transfer to the natural peer group and a gradual withdrawal of supervision, generalization and maintenance is encouraged.

Several studies have attempted to contrast the effectiveness of coaching and modeling (e.g., Gottman, Gonso & Rasmussen, 1975; Gresham & Nagle, 1980; LaGreca & Santogrossi, 1980). Interestingly, Gresham and Nagle (1980) found that both coaching and modeling generated very similar results. They concluded that these two instructional approaches might be considered functionally equivalent. Thus, it is not surprising that some investigators have combined instructional coaching with the use of live or filmed models and role-play procedures (e.g., Gresham & Nagle, 1980; Schneider & Byrne, 1987). In such combined intervention programs, the coaching component often introduces fairly conceptual social knowledge with modeling or role-playing providing consolidating, concrete experiences.

As noted earlier, social skills interventions utilizing instructional techniques have tended to focus more on specific skills or behaviors than have behavioral modification programs. Such skills have included listening, questioning and other communication skills (Bierman & Furman, 1984; Gresham & Nagle, 1980; La Greca & Santogrossi, 1980; Oden & Asher, 1977) as well as ways to be friendly or to be supportive by offering help, encouragement or compliments (e.g., Gresham & Nagle, 1980; La Greca & Santogrossi, 1980; Oden & Asher, 1977). Coaching has also been used to teach children how to get involved in other classmates' games/activities and how to initiate interaction through appropriate greeting (Gresham & Nagle, 1980; La Greca & Santogrossi, 1980) as well as to increase the use of prosocial alternatives to aggressive behaviors for preschoolers (Zahavi & Asher, 1978) and to encourage politeness through the use social amenities such as saying "please", "thank-you" and "excuse-me". (Kohler and Fowler, 1985). Finally, instead of focusing on functionally related social skills, other instructional interventions have sought primarily to

increase social participation (e.g., O'Connor, 1969; 1972) or to increase general participation levels as well as the frequency of positive, prosocial behaviors such as smiling, imitation and physical contact conveying positive affect (e.g., Jakibchick & Smeriglio, 1976; Keller & Carlson, 1974).

A third type of didactic social skills intervention emphasizes the cognitive aspects of interpersonal social problem solving (e.g., Camp, Blom, Herbert & Van Doorninck, 1977; Spivack & Shure, 1974; Urbain & Kendall, 1980; Weissberg, 1981; Weissberg & Gesten, 1982). Generally such programs are based on a model of social problem solving in which the success of a child depends on their ability to evaluate the demands of various social situations, to generate a range of possible alternative solutions, select the most appropriate response in consideration of possible consequences and then to emit that response and monitor/evaluate its impact. Typical of such approaches is Camp et al's (1977) 'Think Aloud' program in which children are taught to use the following self-reflective questions: "What is my problem?", "What is my plan?", "Am I using my plan?", and "How did I do?". As such, these very cognitive programs emphasize the development of self monitoring (e.g., Camp et al, 1977; Spivak & Shure, 1974), self and other awareness (e.g., Chandler, 1973; Ianotti, 1978) and/or decrease impulsive responding (e.g., Goodwin & Mahoney, 1975). Generally, such programs have led to increases in cognitive interpersonal problem solving ability but have had less effect on actual social behaviors and/or level of acceptance by peers especially when the context for such problem solving has been academic versus social tasks/problems (Urbain & Kendall, 1980).

Interventions using peer contact. A final method for improving social skills has involved direct manipulation of children's social environment/experience either to increase the child's (positive) exposure to peers, or to create an optimal context for the performance of desired behaviors (Sancilio, 1987). An example of the latter strategy is the pairing

of a withdrawn child with a non-threatening and/or socially competent child in order to increase social participation (e.g., Chennault, 1967; Furman, Rahe & Hartup, 1979; McDaniel, 1970). Generally such peer pairing has been used primarily to increase the acceptance of mentally handicapped children in mainstreamed classes (e.g., Ballard, Corman, Gottlieb & Kaufman, 1977; Rucker & Vincenzo, 1970) or to lessen social anxiety and increase interaction rates of highly withdrawn children (e.g., Furman et al, 1979). However, provision of the opportunity to interact with more popular classmates (e.g., in special activities) has also been used to attempt to ameliorate the sociometric status of low achieving and/or rejected students (e.g., Lilly, 1971) or as a context for practicing skills recently acquired through coaching (Asher & Hymel, 1986; Bierman & Furman, 1984; Bierman, Miller & Stabb, 1987; Oden & Asher, 1977).

Importantly, simply increasing exposure to peers by itself does not appear to lead to increased acceptance. As Berndt (1983) points out, simply increasing social participation will not necessarily lead to improvements in social status since low baseline participation rates may be as much the consequence as the cause of such low status. Rather, it appears to be crucial that this contact result in positive interactions if it is to lead to peer-group status gains (Gottlieb, Semmel & Veldman, 1978; Ladd, 1981; Sancilio, 1987). When children received skills coaching designed to ensure that the resultant interactions were positive and peer pairing, they have experienced significant gains in sociometric status (Oden & Asher, 1977). In contrast, low status children who received peer pairing by itself did not so benefit. Similar results have been reported with other school aged children (Ladd, 1981) as well as with preschoolers (Factor & Schilmoeller, 1983; Mize, 1985)

Another strategy that has been used to increase children's positive exposure to peers is the use of co-operative activity groups (e.g., Blaney, Stephan, Rosenfeld, Aronson & Sikes, 1979; Johnson & Johnson, 1978; Johnson, Johnson & Scott, 1978). With these interventions, it is believed that co-operative activities pull for positive attitude formation

in peers toward the target child (Lott & Lott, 1960). One limitation in the use of co-operative activities may be that these experiences, by themselves, may not afford the rejected or aggressive child the opportunity to develop the social skills necessary to handle less optimal, more competitive environments. To date, research investigating this issue of skill generalization from co-operatively structured to other peer-group activities does not appear to have been carried out. Similarly, simple prohibitions to not engage in negative behaviors such as fighting, and yelling appear to reduce children's initiations of such negative behaviors with peers. However, much like co-operative activities, such prohibitions may serve to increase the positive tone of interactions but in the absence of the development of relationship skills, long-term gains in peer acceptance appear to have been limited (Bierman, Miller & Stabb, 1987).

Interestingly, in the Bierman et al (1987) study, improvement in level of liking by peers as well as changes in these peers' perceptions regarding treatment children's social behavior/attributes only occurred with peers who had been paired with these children. These authors concluded that both skills training and peer pairing under controlled circumstances were important if one wished to improve the peer relationships of these children. Furthermore, these researchers argued that more widespread sociometric improvement may require more extensive use of such pairing. Other researchers (e.g., Asher & Hymel, 1986; Ladd, 1984) have argued for the importance of peer pairing in order to give children the opportunity to practice and consolidate new skills. However, peer pairing may be a particularly important component of any social skills intervention because it also may serve to directly affect the relationships between trained children and other (paired) peers.

#### Social Relevance of Targeted Social Skills

While the focus in the preceding section was on how to best go about changing

social behaviors or introducing new social skills, the issue in the following section relates more to what social skills/behaviors should be taught/encouraged within any social skills intervention. The emphasis in such interventions can range from social cognitive processes (e.g., Asher & Renshaw, 1981, Urbain & Kendal, 1980) to an emphasis on motoric behaviors (Curran, 1979 cited in Ladd, 1984). One reason for this heterogeneity in skills definitions is that a wide range of behaviors, skills and cognitions may have functional relevance in social interactions especially across different social situations (Foster, DeLawyer & Guevremont, 1986; Hops, 1983; Ladd, 1984; Michelson & Wood, 1980; Gottman, 1983). However, regardless of the skills focus in a given intervention, it is increasingly recognized that it is important to try to introduce or encourage behaviors/skills that do play a role in shaping positive peer relations (Burleson, Applegate, Burke, Delia & Kline, 1986).

Failure to ensure social relevance may be one of the primary reasons why some social skill programs do not result in meaningful changes in children's peer relations (Ladd, 1984). This problem is not restricted to any particular type of intervention method. For example, Strain & Shores (1977) argue that too often a predetermined behavior category such as co-operative play is selected for behavioral reinforcement without consideration of the function these behaviors play in the social context. A similar point has been made by Foster et al (1986) who note that often skills are targeted for development without verifying the actual relevance of these behaviors. These researchers found, for instance, that conversation skills such as making positive remarks have often receive attention in didactic social skills interventions yet were rarely mentioned by children in their reports of behavior influencing the development of their own friendships. Similarly, Gottman et al (1975) found that only a subset of those cognitive and behavioral skills believed to likely be associated with peer-group status actually were. These researchers concluded that empirical validation of the social relevance of various behaviors/skills was

essential if intervention programs were to be successful.

Often the need to check the potential social relevance of a given behavior/skill is translated into a correlates approach (e.g., Asher, 1985; Cambell & Yarrow, 1961) in which behaviors or skills correlated with levels of peer acceptance (e.g., Coie & Dodge, 1983) or associated with various peer-group status positions (e.g., Carlson, Lahey & Neeper, 1984; Coie, Dodge & Kupersmidt, in press; Vogel et al, 1988) are determined to be socially relevant. The central assumption in this approach appears to be is that if there is a high correlation between frequency of a behavior and peer acceptance, changing that behavior will alter the child's status. However, the correlations typically observed between various behaviors and social status have only been moderate in strength (Foster, DeLawyer & Guevremont, 1985). Moreover, such correlations do not distinguish between behaviors that precede status and those which are consequents of such status (Burleson et al, 1986; Foster et al, 1985).

As a result, even with the "competence-correlates" approach (e.g., Asher, 1985), the social relevance of a given behavior needs to be empirically validated. Often social skills training is used in this context (Ladd, 1984). Children who are experiencing current difficulties in their peer relations and who display evidence for a given skill(s) deficit are exposed to a training program designed to foster the development of this skill and/or its increased use by these children in their natural peer-group environment. Concomitant improvements in both the specific skill and subsequent peer relations is then treated as evidence for the social relevance of that skill. Importantly, if such interventions are to help clarify the social relevance of any behavior(s)/skill(s), it may be better to focus on a small set of skills so that any resultant changes in peer relationships will be more likely to be unambiguously related to the skill(s) of interest (Ladd, 1985). However, even if the predicted changes in peer relationships do occur, such interventions typically cannot control all extraneous variables. This limits the strength of resultant inferences regarding

the social or relational role of any behavior/skill (Foster et al, 1985). These authors suggest using children's own descriptions of the behaviors that they perceive to be relevant to their peer relationships to augment results from interventions and correlative designs.

Finally, social relevance of a given behavior does not, by itself, guarantee the success of any intervention. Children may occupy the same status position for many different reasons (Dodge, 1985; Foster & Ritchey, 1979; Hops, 1983; Kennedy, 1988). As a result, it is important to ensure that not only are the behaviors/skills targeted for training generally socially relevant, but also that they are relevant to the children selected for training; that is, to ensure an adequate match between the need(s) of the child(ren) and the focus of any intervention (Dodge, 1985; Kennedy, 1988; Ladd, 1984; Michelson & Mannarino, 1986). In addition, social behavior is likely to be only one determinant of the quality of a child's peer relationships or their desirability as a potential friend (e.g., Zarkin, 1983; Krantz, 1987; Tesser et al, 1984). Indeed, these studies suggest that non-social factors such as physical attractiveness and academic ability may play a strong role in determining any child's success in developing satisfying peer relationships. As a result, changing social behavior may not necessarily change children's relationships with peers (Bierman & Furman, 1984; Berndt, 1983) particularly since children have been found to report being less receptive to positive behaviors and more reactive to negative behaviors emitted by disliked versus liked peers (DeLawyer & Foster, 1986).

#### Maintenance and Generalization of Treatment Gains

In considering the problem of ensuring maintenance and generalization of changes in behavior or skill it is generally acknowledged that ensuring peer reinforcement is important (Ladd, 1984; Phillips, 1978; Sancilio, 1987; Strain, Kerr & Ragland, 1981). Certainly, if a behavior is not socially relevant, it will not likely be reinforced by peers (Sancilio, 1987). Thus, any step taken to increase the probability of a positive peer

response should facilitate generalization and maintenance (Michelson & Mannarino, 1986). Indeed, it has been this concern which has led researchers to attend to the role of naturally occurring reinforcement contingencies in the peer group in maintaining or extinguishing skills introduced in a social skills intervention (e.g., Baer & Wolf, 1970; Kohler & Fowler, 1985; Ladd, 1984; Paine, Hops, Walker, Greenwood, Fleischman & Guild, 1982; Sancilio, 1987). If one wishes to ensure that the skills taught and/or reinforced in social skills training are generalized to the peer-group and maintained, it would appear essential to ensure that the natural group contingencies reinforce desired behaviors (Kafer, 1983; Sancilio, 1987). To this end, it may prove useful to teach social skills in the context of this pre-existent and ongoing peer group (Kafer, 1983) or to intervene directly to increase the receptiveness of the social environment to the child(ren) in addition to introducing new skills/behaviors (Vacha, Coburn, Black & McDonald, 1979).

In considering other ways to maximize generalization and maintenance, Michelson and Mannarino (1986) also argue that it is important to reinforce for transfer through the initial use of continuous reinforcement, followed by increasing use of intermittent reinforcement and gradual fading of reinforcement while ensuring that reinforcement of these behaviors occurs in the natural peer-group environment. In addition, training in flexibility through the use of combined instructional methods, multiple exemplars, models and role plays should also enhance generalization and maintenance because children should be able to apply their new skills in a wider variety of contexts (Michelson & Mannarino, 1986; Ladd & Mize, 1983).

Finally, matching social skills training with need should also increase maintenance and generalization since, if the cause of any child's peer related difficulties is addressed, the child will be more likely to experience increased success as a result of the application of these skills which would then be reinforced. As Hops (1983) notes, children may experience difficulties in their peer relations for a variety of reasons. They do

not represent a heterogeneous population. By ensuring an adequate match between intervention and need, maintenance and generalization of gains in skill and quality of peer relations will be more likely (Michelson & Mannarino, 1986; Schneider & Byrne, 1987).

#### Friendship Enhancement Versus Status Improvement.

A number of researchers have questioned whether the goal of making children popular is as desirable as the development of a few close friendships (e.g., Asher & Parker, 1989; Foster & Ritchey, 1979; Furman & Robbins, 1985; Kennedy, 1988). For one thing, very few differences in social behavior have been found between children who are popular and their more average counterparts (Asher & Parker, 1989; Asher, Parkhurst et al. in press; Coie, Dodge & Kupersmidt, in press). In addition, focusing on improving overall peer-group status may result in an over-emphasis on conformity (Foster & Ritchey, 1979). Indeed, popularity may even be a source of stress at least for girls (Burton, 1986 cited in Kennedy, 1988). Perhaps most importantly, having at least one good friend (see Chapter 2), may be developmentally of greater consequence than being popular (Furman & Robbins, 1985; Kennedy, 1988; McQuire & Weisz, 1982; Nelson & Aboud, 1985). In particular, there is evidence to suggest that the negative effects of general peer rejection can be significantly attenuated by close friendship (Bukowski & Hoza, 1989; Buzzelli, 1988).

In addition, most gains reported in social skills interventions designed to ameliorate general peer-group status have been moderate (Bierman & Furman, 1984; Bierman, Miller & Stabb, 1987; Drabman & Lahey, 1974; Foster et al. 1985; Furman & Robbins, 1985; Ladd, 1984; La Greca & Santogrossi, 1980; Oden & Asher, 1977; Schneider & Byrne, 1985). Such results led Bierman and Furman (1984) to suggest that, as children become older, their peer groups may be more resistant to changes in sociometric position within these groups. In fact, peer pairing in combination with skills instruction has led to

increases in the degree to which these children were liked by paired peers without concomitant improvements in overall status (Bierman et al. 1987). These researchers concluded that the achievement of status related gains may require more extensive and systematic pairing of children enrolled in social skills training with a greater number of their peers. However, given the fact that most social skill interventions by necessity tend to be fairly brief, it may actually be both more realistic and more beneficial in the long term to target specific relations for improvement. This point is echoed by Furman and Robbins (1985), who argued that greater attention needs to be placed on assessing the spectrum of any child's peer relations so that interventions can be geared more toward helping children develop a few meaningful, satisfying relationships rather than seeking to improve the child's overall or general acceptance in the peer group.

All of these considerations have prompted increased attention on friendship enhancement as a goal for social skill training. Importantly, with such a goal, the purpose of the intervention is to teach children friendship skills and help them to apply these skills to develop and improve specific friendships. While such a focus may lead to generalized gains across the entire peer group, the primary goal is to ensure that the child develops at least a few genuine friendships.

Interestingly, many of the methods used in interventions seeking to generate changes in overall peer-group status may also be useful in programs focusing on friendship enhancement or the improvement of specific relationships. Modeling and coaching using the didactic training sequence suggested by Ladd (1984) would appear to still represent methods of choice for introducing new behaviors/skills. In addition, the need to ensure that children apply new skills to the desired social/relational context and that these efforts result in the positive reinforcement of these behaviors would still seem relevant. Perhaps the greatest change in a friendship-focused program would be that intervention efforts can be focused on specific targeted relationships. Thus, such programs may be ideally suited

for peer pairing strategies in which children are paired with specific classmates with whom they wish to become friends. Importantly, exposure to such friendship making opportunities will not likely be effective if the necessary friendship making skills have not been first developed.

Focus on specific relationships may also allow clinicians to more easily track children's attempts to apply new skills, friendship making strategies, with real peers in their natural peer group environment. Once a small set of friendship targets have been chosen, children could be asked to apply their newly acquired skills with these friendship targets as well as to report back to their social skills trainer regarding the impact of these efforts. While similar procedures could be adopted within a more general intervention focusing on children's overall social behavior, the specificity involved in a friendship-focused intervention may facilitate both the execution and evaluation of any such behavioral assignments. Furthermore, such monitoring may increase the chance that such skills will be applied in ways that will lead to success and therefore be reinforced and maintained.

In this context, it may be useful to distinguish between two kinds of coaching which may take place in friendship focused social skills instruction. The first involves teaching, through a verbal/didactic approach, either social knowledge and/or related social/behavioral skills. The second possible coaching function involves a consultative role where the social-skills 'coach' brainstorms with the child concerning how best to solve specific problems that the child is actually currently experiencing in their peer relations. Indeed, this consultative function might be combined with the evaluation of children's attempts to make friends through behaviors/tasks assigned in the context of social skills training.

This inclusion of a consultative role through which the social skills trainer helps the child to realize a goal (friendship making) with a target that the child has selected would also seem to incorporate what Trower (1984) calls the "agency" approach toward

social skill training. In this approach, the person receiving such training is recognized to be (pro)actively involved in their social world, to be goal directed and continually engaged in trying to understand his/her own social experience. Trower argues that simply instructing a person in a set of social skills under-emphasizes the agency of that individual. In contrast, in the agency approach (p. 9) "the aim is to help the client become a self-directed skill generating agent, to be able to learn skills where previously he(/she) was blocked".

Use of the social skills coach as a relational problem solver may have some additional advantages. The coach may model social problem solving skills as these apply in an actual social situation. Furthermore, such a consultative role, in helping children apply these newly acquired skills may serve to increase the quality and hence the success rates for these efforts. Both of these factors, in turn, may help ensure positive responses from these friendship targets and hence promote the natural contingencies necessary to maintain friendship skill gains. However, as was the case for social skills training with a focus on social status, there is a need to identify processes by which children form and maintain friendships if we are to develop successful interventions (Parker & Gottman, 1989). In other words the social relevance of skills taught in any intervention remains important. Furthermore, the skills important to friendship may not necessarily be the same as those related to the development of positive peer-group status. As a result, if interventions are going to focus on friendship enhancement, further research into friendship development and maintenance processes would seem to be essential (Gottman, 1985).

### Summary and Conclusions

Attempts to develop friendship-focused intervention programs may benefit from knowledge accumulated over the last two decades in programs designed to help children improve their overall peer-group status. Specifically, at least three distinct methods have

been used to ameliorate children's general peer relations. The first involves the use of reinforcement contingencies which may be delivered through a variety of schedules and agents. The typical goals of such interventions appear to be either to increase general social participation and/or to increase levels of generally positive behaviors and decrease levels of negative behaviors.

Perhaps the most relevant finding from these behavioral interventions is that children's social behavior is shaped by subsequent reactions from peers. Skills taught in social skills training that do not lead to positive responses from peers are not likely to be generalized and/or maintained. Thus it would seem to be important to ensure that skills taught are socially or functionally relevant. Importantly, intuitive appraisals of likely relevance does not appear to be sufficient. Rather, it appears critical that information from a variety of sources be used to confirm the importance of any given behavior/skill. Specifically, skills found associated with the desired social outcome are more likely to be socially relevant than those which are not so related. However, because any behavior can be as much a consequence as the cause of a given social outcome, it may also be important to document the nature of the relationship between any behavior and the quality of a child's peer relations. This may involve the use of several research paradigms including children's own appraisals of functional relevance and intervention studies which manipulate the behavior of interest while tracing the social impact of such manipulations.

The second type of social skills training program involves instructional methods such as coaching and modeling. These procedures have been used to promote the development of a variety of fairly specific and often functionally related social skills. Within such programs certain instructional sequences may result in maximum of skill development. Specifically, suitable motivation and the intent to learn needs to be established. Then, the skill concept should be defined and concretized in terms of exemplars. In addition, the relevance of the skill and situations where the skill is likely to be important must

be described. Once the child has mastered the skill concept and understands its functional relevance, the child can develop the ability to convert this understanding into skilled behavior through guided rehearsal first in a relatively protected or undemanding environment, usually with the adult instructor. This skill is then generalized and refined by having the child engage in this behavior/skill in situations with higher performance demands and, eventually, in the natural peer group environment. Through this transfer to the natural peer group and a gradual withdrawal of supervision, generalization and maintenance is encouraged.

Finally, a third variety of interventions appear to be designed primarily to provide the child with the opportunity to interact with peers. Importantly, these latter interventions appear to require at least some additional skills training to ensure that such exposure results in positive interactions. Most often, such peer pairing has been used to help consolidate skills and improve transfer from the instructional context to the larger peer group. However, there is also evidence to suggest that such peer pairing may be an important part of the intervention process since improvements in the peer relationships between children in training tends to be localized to those peers they have been paired. Indeed, this may be one of the advantages of a social skills training program which focuses on friendship enhancement or the improvement of a small subset of specific relationships. Like peer pairing, it may help focus intervention efforts, thereby increasing the chances for significant improvements in these peer relationships.

Interestingly, all of the above intervention techniques may be used in any combination and may have their place in a friendship focused intervention. Skills believed to be important to the friendship formation process may be introduced and taught through coaching methods and then modeled and practiced with the social skills coach who provides feedback and praise. If the program includes an applied component in which children select potential friendship targets then, much like peer pairing, the child's

attempts to generate improvements in his/her peer relationships can be focused on a specific subset of classmates.

In facilitating friendship formation, the social skills coach can function as a relationship consultant and, in doing so, can model important social problem solving skills. The child can also be encouraged to generalize the skills that he/she has learned to developing the friend(s) that he/se wishes to. In this way, the instructor can also track the child's progress and help ensure that the child's overtures meet with success. All of these aspects of a friendship focused program seem to represent features which other researchers have argued should facilitate maintenance and generalization.

Finally, the goal in a friendship focused intervention program is to help children develop friendships and friendship making skills. This represents a distinct shift in focus compared to most previous intervention studies. Furthermore, the skills most important in friendship formation are unlikely to be exactly the same as those which appear to play the greatest role in shaping general peer-group status. Since the ultimate success of intervention seeking to help children develop friends will likely depend on whether the skills taught are those which have functional roles in friendship formation and/or maintenance processes, it would seem critical that the friendship formation process be more clearly understood. Indeed, as argued in Chapter 3, a primary purpose of this dissertation project is to consider the role that the communication of liking plays in friendship formation. However, focusing on friendship development necessitates modifications in the assessment and data analytic procedures typically employed in studies of children's general peer relations. These changes and other assessment issues will be considered in Chapter 5.

## CHAPTER FIVE

### Assessing Children's Friendships: Issues and Procedures

#### Overview

This chapter is devoted to the exploration of several general conceptual and methodological issues regarding the assessment of children's friendships and the social interactions occurring between friends. These issues include: a) the implications of assessing friendships versus group-level dynamics, b) the distinction between social behavior and its impact, c) the identification of exactly what skill or behavioral deficit/excess is contributing to any child's peer-related social difficulties, and, d) the relative merits of various sources of assessment data. Based on this review, several tentative conclusions will be proposed regarding assessment procedures most suitable for studying the role that the communication of interest and liking plays in friendship formation.

#### Assessment of Friendship Versus Group-level Dynamics.

Many researchers are placing increased emphasis on the distinction between popularity and friendship (see Chapters 1 and 3). Importantly, if researchers and clinicians are to investigate children's friendships and the factors influencing such friendships, modifications are necessary in assessment procedures developed primarily in the context of studying children's peer group status. First, rather than relying on average levels of liking or social preference across the entire group, most criteria used to identify friendships stress mutuality of positive affect (e.g., Berndt, 1981, Berndt & Das, 1987; Jones 1985; Ladd & Emerson, 1984; Nelson & Aboud, 1985; Newcomb & Brady, 1985). Such mutuality can only be identified if data are analyzed without aggregating the scores children receive from peers since in calculating mean liking or preference scores dyad-specific

information is lost (Bukowski & Hoza, 1989; Furman & Robbins, 1985; Roopnarine et al, 1988). In addition, in order to explore factors influencing these friendships it is important to look at the interactions occurring within specific friendship dyads. Again, this is not possible once data been aggregated into group-level measures (Bukowski & Hoza, 1989; Roopnarine et al, 1988).

### Social Impact Versus Social Behavior.

It is possible to distinguish between any child's peer-directed behavior and the social impact of this behavior. This distinction has perhaps been drawn most frequently in discussion of the difference between screening and diagnosis (e.g., Kennedy, 1988; Ladd, 1985). In screening, the primary interest is verifying the existence of peer-related social difficulties in terms of a lack of peer acceptance or a paucity of friends in the peer group (Asher & Hymel, 1981; Ladd, 1985). In diagnosis emphasis is placed on identifying the probable cause of these peer-related social difficulties (Dodge, 1985; Foster & Ritchey, 1979; Furman, 1984). Such diagnostic information is necessary to ensure a proper match between children's social skills deficits and any intervention (Kennedy, 1988; Michelson, Sugai, Wood & Kazdin, 1983). Similarly, in assessing treatment outcomes, reliance solely on measures of social impact does not generate an unequivocal demonstration of the social relevance of remediated skills since such training may have stimulated other, unrelated changes in children's social behavior that may account for any treatment gains observed in terms of peer acceptance (Ladd, 1985). Again, it would seem that greater attention needs to be placed on the both assessment of actual social behaviors, skills or competencies as well as their impact on peer relationships (Foster et al, 1986; Greenwood, Walker & Hops, 1977; Ladd, 1985). In effect, there a growing expectation that the social relevance of any skill or competency not be assumed but demonstrated (Foster & Ritchey, 1979, Ladd, 1985; Michelson et al, 1983). In order to do so, the ideal would seem to be to

demonstrate first that children acquired the behavior/skill, second, that this behavior/skill has been transferred to the natural peer environment, and third that this performance had an effect on subsequent peer interactions and/or relations (Foster et al, 1985, 1986).

### Measuring Social Skills

In order to demonstrate the social relevance of a given behavior or skill, it is necessary to identify and define the social skill or competence of interest. In identifying such skills, many researchers have emphasized social consequences of a given behavior/skill. These consequences range from the meeting of one's own needs within a social context (e.g. Foster & Ritchey, 1979; Phillips, 1978), the amount of positive reinforcement elicited from peers as a result of behaviors emitted (e.g., Libet & Lewinshon, 1973), to the degree to which a child is liked by his/her peers (e.g., Asher & Hymel, 1981; Gresham, 1981a). Other authors have placed greater emphasis on the evaluation of the actual behaviors themselves rather than their consequences. This has been usually done either in terms of level of skill (Hops, 1983; Hops & Finch, 1985), the degree to which the behavior conforms to social values or norms (e.g., Combs & Slaby, 1977) or the degree to which the person's behaviors are themselves considered to be positively reinforcing to others (Gresham, 1981a).

While there may be considerable overlap between many of these approaches to the identification and definition of social skills or competencies, each approach appears to emphasize different aspects of social behavior and social relationships. The result appears to be that what is meant by social competence or social skill can vary considerably across studies (Dodge, 1985; Kennedy, 1988; Michelson & Wood, 1980). Thus, it is important that researchers make explicit what aspects of social competence are of interest and tailor their assessment to this focus (e.g., Ladd, 1985; Michelson & Wood, 1980). This definition and operationalization of those social competencies which are to be investigated is

particularly important because children with peer-related difficulties are unlikely to be homogeneous in terms of their skills deficits (Dodge, 1985). In fact, even children exhibiting the same behavioral excesses or deficits may be doing so for different reasons since lack of skill, insufficient motivation or even self-control or impulse control problems are capable of generating equally incompetent behavior (Elliott & Gresham, 1987). Again, the conclusion would appear to be that one should not assume a lack of competence or a skills deficit but, rather, operationalize and assess for it (Hops, 1983; Ladd, 1985).

#### Sources of Assessment Data.

It is also necessary to consider which of the various possible sources of assessment information are most suitable for measuring the skills or social behaviors of interest. The relative advantages and disadvantages of each of these information sources are considered below.

Behavioral observation (in the child's natural peer-group environment). This method would appear to have the greatest potential for yielding externally valid or objective measures of social behavior as well as information regarding the antecedents and consequents of such behavior because social interactions are being directly observed (Foster & Ritchey, 1979; Green & Forehand, 1980; Gresham, 1981a; Hops, 1983; Michelson et al, 1983; Price & Ladd, 1985). However, this advantage of external validity requires the unobtrusive use of trained observers as well as a reliable behavior coding scheme (Lipinski & Nelson, 1974; Michelson & Wood, 1980). Generally, these requirements appear to limit the use of behavior observation schemes to the measure of gross categories of social behavior such as frequency and duration of social contact (e.g., Allen et al, 1964; Evers & Schwartz, 1973; Geller & Schierer, 1978), overall levels of positively reinforcing, aversive and neutral behavior (e.g., Charlesworth & Hartup, 1967; Gottman,

1977; Green & Forehand, 1980; Gresham, 1981b), initiating, maintaining and terminating interaction (e.g., Knox, 1985), or almost equally broad prosocial and anti-social categories such as physical and verbal aggressiveness (e.g., Iwata & Bailey, 1974; Slaby & Crawley, 1977; Ward & Baker, 1968) or friendly overtures (Cambell & Yarrow, 1961). The net result seems to be that observational measures of social competency tend to be somewhat limited both in terms of what aspects of social interaction can be measured by this method (Coie & Dodge, 1988; Gresham, 1981a; Knox, 1985; Lipinski & Nelson, 1974; Michelson et al, 1983;) and in terms of the ability of such measures to discriminate between popular and unpopular children (Foster & Ritchey, 1979; Michelson & Wood, 1980).

In addition, many of the critical incidents which children have reported as having influenced their level of liking for various peers (such as property/rule violations, complying with a request or remaining loyal) may not be accessible to adult observers (Foster et al, 1986), or may be sufficiently infrequent that they may be easily missed given practical limitations in behavior sampling procedures (Asher & Hymel, 1981; Dodge, 1985; Foster et al, 1986; Lipinski & Nelson, 1974; Michelson et al, 1983). Finally, the use of observational procedures has also been limited by practical considerations such as time, cost and the reticence of some school boards to accommodate to the requirements of assessment via observation (Dodge, 1985).

Role-play methods. One assessment procedure that has been used to supplement in vivo behavioral observation involves having children role-play skills such as self-expressivity (e.g., Rinn, Priest, Barnhart & Markle, 1986) and assertiveness (e.g., Reardon, Hersen, Bellack & Foley, 1979; Rinn et al. 1986). This allows the researcher (or clinician) to conduct a more fine-grained analysis of a specific set of behaviors (Asher & Hymel, 1981; Bellack, Hersen & Turner, 1978; Michelson & Wood, 1989). However, the bulk of the research involving this assessment technique indicates a generally weak association between level of skill demonstrated in role played scenarios and peer-group status

(Maston, Dawson & Kazdin, 1983). One possible reason for this is that children's behavior in role plays often reflects knowledge of appropriate behavior/norms (Michelson & Wood, 1980), rather than typical behavior in real-life situations (Bellack et al, 1978; Michelson et al, 1983; Reardon et al, 1979).

Experimental or analogue situations. An assessment strategy that is somewhat related to role plays is the creation of controlled but real social situations which increase the probability of certain behaviors/skills being emitted but do not involve role played or scripted responses. Generally, this approach has involved placing children into small groups or dyads and observing either how they go about getting to know each other (e.g., Newcomb & Meisler, 1985) or how they gain access into ongoing group activities (e.g., Dodge et al, 1983; Putallaz & Gottman, 1981b). In contrast to role-play methods, children's behavior in contrived but unscripted social situations does appear to have some concurrent validity. However, though use of contrived group-entry situations has yielded interesting results in terms of identifying social competencies relevant to the social tasks of becoming acquainted and gaining entry into group activities, the use of this technique in assessment appears to be limited by the kinds of social situations which can be easily contrived without losing authenticity.

Peer sociometric methods. Probably the most common use of peers as informants involves sociometric measures of preference or liking (Asher & Hymel, 1981; Green & Forehand, 1980; Gresham, 1981a; Northway, 1944). Indeed, by the time children are in school, children's own reports become the primary source of information regarding patterns of mutual preference within the peer-group as well as regarding other aspects of their relationship(s) (Price & Ladd, 1986). Two variations of such sociometric measures presently appear to be the most popular. The first involves having children nominate a number of classmates (usually three) whom they like most and an equal number of peers

whom they like least (e.g., Gresham, 1981b). The second sociometric method involves having children rate each classmate, on a 5 to 7 point Likert-type scale, in terms of how much they like to play with (work with etc.) that peer (e.g., Oden & Asher, 1977). Generally, with either measure, children have been restricted to considering only same-sex peers or, if opposite-sex relationships are of interest, to considering opposite-sex and same-sex classmates separately (Asher & Hymel, 1981).

Both rating scale and nomination sociometric measures consistently have been found to possess reasonable retest reliability (Asher, & Hymel, 1981; Foster & Ritchey, 1979; French, Wass & Tarver-Behring, 1986) and criterion-related validity in the form of moderate relationships with measures of social behaviors expected to be related to children's level of acceptance in the peer group (e.g., Bukowski & Hoza, 1989, Green & Forehand, 1980; Harter, 1982; La Greca, 1981; Marshall & McCandless, 1957; Michelson et al, 1983). Such sociometric measures have demonstrated as well as a high degree of convergence with other independent assessments (e.g., by teachers) of social competence (Foster & Ritchey, 1979) and have been shown to possess consistent predictive validity in terms of their ability to predict long-term psychological adjustment (e.g., Cowen, Pederson, Babigan, Izzo & Trost, 1973; Foster & Ritchey, 1979; Parker & Asher, 1987). Finally, sociometric measures appear to have a very high social validity as a measure of interpersonal attraction between children (French et al, 1986; Gresham, 1981; Michelson et al, 1983; Michelson and Wood, 1980). As a result, such sociometries appear to provide a very important screening and outcome measure (Asher & Hymel, 1981; Hops & Greenwood, 1988).

The rating-scale sociometric measure, however, has the added advantage of providing more information regarding the state of each potential relationship in any group since these rating scales require children to rate every other child on a five or seven-point scale as to how much they like to be with (or work with) each of their classmates (Asher

& Hymel, 1981; Foster & Ritchey, 1979; Gresham, 1981b). Furthermore, recent research has indicated that the rating-scale sociometric method with its ordinal scaling appears to possess a number of other psychometric advantages over the nomination procedure including a more normal-like distribution in scores (Michelson & Wood, 1980), increased sensitivity to treatment effects (French et al, 1986; Gresham, 1981), higher reliability (Asher & Hymel, 1981, Gresham, 1981, Kalfus & Berler, 1985; Kennedy; 1988 Wanlass & Prinz, 1982), and validity as a measure of children's peer preferences (Boivin & Begin, 1986; Bullock et al, 1988, Kennedy, 1988; Michelson & Wood, 1980; Murphy 1986a, 1986b).

While there is some debate concerning whether sociometric nominations and sociometric ratings tap the same dimension of preference (e.g., Asher & Hymel, 1981; Gresham, 1981b; Kalfus and Berler, 1985; Price & Ladd, 1986), many researchers (e.g., Bullock et al, 1988; Bukowski & Hoza, 1989; French et al, 1985; Murphy, 1986a, 1986b; Poteat, Ironsmith & Bullock, 1986) have found a high degree of convergence between sociometric nominations and ratings. Such findings have led Bukowski and Hoza (1989) to conclude that sociometric ratings tap both acceptance and rejection dimensions of peer relations while positive nominations measure acceptance and negative nominations, rejection. Furthermore, these authors argue that either nominations or ratings can be used to assess both group-level social status or dyad-specific levels of attraction or liking.

Because these sociometric measures assess interpersonal liking, the resultant data often serve as a primary index for the existence of a peer-related social difficulty. Asher & Hymel, 1981; Gresham, 1981a; Ladd, 1985; Michelson et al, 1983). However, while identifying children who are generally disliked may be useful as an initial screening procedure (Putallaz & Gottman, 1981a), there remains the problem of determining why these children are unpopular (Foster & Ritchey, 1979; Furman, 1984; Gresham, 1981a; Kafer, 1983; Michelson et al, 1983). In other words, the exact nature of the social competency

deficit still needs to be identified so that any intervention can be tailored to the actual needs of the child (Greenwood, Walker & Hops, 1977; Guralnick & Weinhouse, 1983; Kennedy, 1988; Ladd, 1985).

Peer behavioral reports. It is in the context of this need for more detailed diagnostic information as well as verification of changes in the target behaviors, that a second type of peer-report measure is receiving greater attention (e.g., Coie & Dodge, 1988; Elliott & Gresham, 1987; Foster & Ritchey, 1979). These measures typically require children to nominate classmates whom they feel fit certain descriptors such as "Someone who helps others, who is smart, who is good looking, who leads". Generally, these descriptors are designed to tap social behaviors, socially relevant attributes, or social roles (e.g., Carlson, Lahey & Neeper, 1984; Coie, Dodge & Coppotelli, 1982; Masten, Morison & Pellegrini, 1985; Newcomb & Bukowski, 1983; Pekarik, Prinz, Liebert, Weintraub & Neale, 1976).

While the use of peers as 'behavioral' informants may be susceptible to problems of bias (Berndt & Das, 1987), factor scores derived from such measures have demonstrated reasonable stability (e.g., Masten et al, 1985), criterion-related validity in terms of convergence with teacher's ratings of comparable behaviors (e.g., Coie & Dodge, 1985; Masten et al, 1985; Milich & Landau, 1984) as well as a reasonably high level of correspondence with observed behavior (e.g., Milich & Landau, 1984; Serbin, Lyons, Marchessault & Morin, 1983; Serbin, Lyons, Marchessault, Schwartzman & Ledingham, 1987). Children's assessments of their peer interactions have also been found to differentiate between close friends and more neutral relationships within their peer group (Berndt & Perry, 1986; Bukowski & Hoza, 1989). Similarly, children's reports regarding perceptions of peers' general social behavior such as levels of prosocial, sociable, and negative/aggressive behaviors also discriminate between children who are generally accepted versus rejected by peers (Carlson, Lahey & Neeper, 1984; Coie, Dodge & Coppotelli, 1982;

Milich & Landau, 1984; Newcomb & Bukowski, 1983) as well as between children who are at different levels of risk for experiencing long-term academic difficulties (Ledingham & Schwartzman, 1984). Thus, it would appear that the use of peers as informants can generate socially and externally valid data (Bierman & McCauley, 1987; Bukowski & Hoza, 1989; Kennedy, 1988; Michelson et al, 1983) perhaps because it is the children themselves who interact on a daily basis with each other (Asher & Hymel, 1981; Coie & Dodge, 1985).

All of the above examples of peer 'behavioral' report measures share several characteristics. First, as was the case with nomination sociometric measures, children nominate one or more peers for any given descriptor rather than rate each classmate separately. Second, most current peer-behavioral report measures have been designed to tap children's impressions and evaluations of peers' attributes, overall behavioral styles, and roles within the peer group. For example, on the Revised Class Play, some of the descriptors for which children are asked to nominate classmate(s) are: "Someone who everyone listens to", "is polite", "is usually sad". While such information has proven useful in discriminating between children occupying different status positions in the peer group (e.g., Carlson et al, 1984; Coie, Dodge & Kupersmidt, in press; Coie et al, 1982; Newcomb & Bukowski, 1983; 1984), these measures generally have not been designed to assess interactions between any two specific children though grade-school children have been found to be capable of providing accurate and clinically useful descriptions of their own interactions (Bierman & McCauley, 1987).

Importantly, if one wished to use peers as informants regarding actual interactions occurring between themselves and specific classmates, the use of the rating scale format would appear to have several potential advantages. For one thing, with rating scales, children report on every peer rather than selecting a specified number (usually three) who best fit a given descriptor. In addition, rating scales appear to provide for a

more fine grained measurement of behavior frequency than would the all-or-nothing nominal scaling format of nomination measures (Murphy, 1986a).

Teachers as informants. While not the most widely used information source concerning patterns of peer preference, teacher reports of friendship have tended to show reasonable concordance with behavioral indices of friendship (e.g., Howes, 1983). However, the most prevalent use of teachers as informers has been to assess social behavior as opposed to friendship patterns (e.g., Ledingham, Younger, Schwartzman & Bergeron, 1982; Pekarik et al. 1976; Reardon et al. 1979; Walker, 1970).

At this point, there remains some debate concerning the relative merits of teacher ratings. Some researchers have found teacher ratings to show a fairly high level of convergence with peer nominations or ratings for similar behaviors and attributes (Kennedy, 1988; Ledingham et al. 1982; Maston et al 1983; Pekarik et al, 1976) or actual behavioral observations (Cairns, Cairns, Neckerman, Gest & Garipey, 1988; Gresham, 1981a) especially when these ratings are based on a structured observation procedure itself (Elliott & Gresham, 1987; Schachar, Sandberg & Rutter, 1986). Researchers, however, also note a halo effect in which children's more academically related classroom behavior appears to effect ratings regarding peer-related behavior or social standing (e.g., Kennedy, 1988; Michelson and Wood, 1980). The net effect of this bias is that teachers may tend to overestimate the behavioral problems or social incompetence of defiant, disruptive and/or academically weak children (e.g., Bolstad & Johnson; 1977; Schachar et al, 1986) or under-estimate the prosocial behavior of children who while often aggressive and disruptive, display leadership and other prosocial behavior (Coie and Dodge, 1985). Thus, though teacher reports may be sensitive to the existence of behavioral and social difficulties, such measures often lack specificity (Green, Beck and Forehand, 1980). Furthermore, the utility of teachers as behavior observers depends on, amongst other things, the quality of their operational understanding of the behaviors to be rated

(Michelson and Wood, 1980).

A final difficulty with teacher ratings is that teachers may not be privy to much of the social interactions that influence children's peer relations (Byrne & Schneider, 1986; Michelson et al, 1983). This would seem to be especially true if the goal in assessment is to measure interactions occurring between specific children rather than the general patterns of social behavior of any child. Since the focus of this research is the study of factors influencing the development of specific friendships rather than group level status, this limitation would seem to severely curtail the potential utility of teachers as informants in the context of this dissertation.

Self-reports. A final information source for assessing children's social competence, is the child her/himself. Indeed, some authors (e.g., Bierman & McCauley, 1983 cited in Kennedy, 1988; Hymel & Franke, 1985) have suggested that self-report measures may provide useful information about a child's social competence across a variety of social environments. Generally, however, use of self-report has been limited because of concerns regarding the tendency to present oneself favorably often encountered on such measures (Green and Forehand, 1980; Gresham & Elliott, 1987; Kennedy, 1988; Michelson et al; 1983; Michelson and Wood, 1980). As a result, self-ratings of social competency tend not to be highly related to similar assessments by peers and teachers nor to predict peer-group status (Ledingham et al, 1982; Maston et al, 1983; Pekarik et al, 1976). Where self-report measures may prove more useful is in the assessment of internal states or attitudes such as sense of self-efficacy (Ladd & Wheeler, 1982), perceptions of social competence (Harter, 1982), feeling of loneliness (Asher, Hymel & Renshaw, 1984) and degree of peer-orientation (Evers-Pasquale & Sherman, 1975). Since a child's self-perception, cognitions and feelings could well influence social behavior (Dodge, 1985; Elliott & Gresham, 1987), assessment of these constructs may be clinically relevant despite

reporting biases often associated with self-report measures.

### Conclusions

The importance of directly assessing social competency. Researchers appear to be in general agreement that it is important to explicitly identify and define the social skill or competency of interest in any research and to assess that competency directly rather than simply assuming a skills deficit in the presence of peer-related social difficulties. For this reason, assessment protocols should include instruments designed to measure the competencies which will provide the focus of any research effort or clinical intervention (Greenwood et al, 1977; Ladd, 1985).

In the context of this research project, the relevant competency involves the communication of liking and/or an interest in friendship. Thus, it would appear important that a measure be included in this research for assessing those social transactions which appear to have the greatest potential to convey such social inclinations. In this way, the relevance of such inter-personal communication to the friendship formation process can be tested by a) demonstrating an initial deficit in the competency as well as a correlated difficulty in the child(ren)'s peer relations, b) intervening to ameliorate this deficit, and then c) demonstrating a subsequent concomitant improvement in both peer acceptance as well as the competency of interest.

Optimal assessment procedures for this study. Many researchers (e.g; Cairns et al, 1988; Greenwood et al, 1977; Lochman and Lampron, 1985; Michelson et al, 1983) have convincingly argued that no one assessment procedure adequately taps all the information critical to the proper identification of children with social skill deficits. Generally, there seems to be a consensus in the literature that peer sociometrics provide a important, socially valid index of level of peer acceptance. As such, the inclusion of a sociometric

measure in this study would appear to be essential. At the same time, most researchers also appear to agree on the need to include some other measure(s) designed to assess the nature of any social skills deficit which might underlie any problem in level of peer acceptance experienced. Since the goal of this research is to explore the role that the communication of liking and interest plays in friendship formation, the selection of a measure for assessing this communicative social competency was based on a consideration of how to best assess those social transactions likely to be important in conveying these feelings.

First, it was felt that an effective measure of the communication of liking and relational interest between children likely should include consideration of a wide range of behaviors, all of which may serve to cue the other child as to the interest of the first child. Second, direct observation and reliable coding of those peer interactions which may be significant in terms of the communication of liking may prove difficult as relevant behaviors may be fairly complex, subtle, and less observable. In addition, the behaviors of interest may be so rare as to require an inordinate amount of observation to adequately assess. For example, if child A hits Child B only once a month, this may still be quite sufficient to convince Child B that Child A does not like him/her. Yet it is unlikely that even an extensive period of observation will provide a representative sample of these rare behaviors especially given the difficulty in obtaining adequate behavioral/observational data in school systems which are primary intervention sites (Dodge, 1985). Furthermore, while observation in contrived or analogue settings has been used to assess tendencies to emit rare but important social behaviors, the correspondence between behaviors occurring in these analogue situations with those occurring naturally has been low (Bellack et al, 1978; Michelson et al, 1985).

For all these reasons, it was concluded that the use of informant reports would likely provide the most useful information regarding the communication of liking between children. While teacher reports might be used, this source would seem to involve several

disadvantages (both practically and psychometrically speaking) when compared to peers. This would seem to be particularly true if one was interested in identifying changes in the interactions between specific pairs of children on the basis of behaviors which, while salient to these children, might not necessarily be easily observed by a peripheral adult. In addition, children have been found to provide useful descriptions of their own interactions. It would therefore seem that the most appropriate informants would be the child's peers who are the actual recipients of behaviors serving to convey liking between children.

On assessing children's friendships. Perhaps the most common point raised by researchers arguing for increased attention to friendship patterns and friendship formation processes is that such investigation must examine levels of liking as these occur between specific friendship dyads rather than general patterns of liking and interaction across the entire peers group. Importantly, if the focus of research is to be on specific relationships or friendship formation processes instead of factors influencing overall status, then dyad-specific data analyses would seem essential. Furthermore, it would seem that this requirement would necessitate that children report on interactions specific to each relationship rather than more global perceptions of classmates' overall behavior in the peer group.

Interestingly, the two currently most popular peer assessment measures of children's social behavior: the Minnesota Revision of the Class Play (Masten et al, 1985) and the Pupil Evaluation Inventory (Pekarik et al, 1976), do not focus on interactions specific to the dyad in question. Rather, they tap perceptions of other children's general behavior in the referent group (e.g., 'Someone who causes trouble', or who 'helps others'). In addition, most of the items in these measures really do not focus on social transactions. Rather, items tend to involve perceptions of overall competence (e.g., 'someone who is smart', has 'many friends'). As a result, an instrument is needed which measures only interactions directly involving the child rather than more global perceptions of his/her

peers' aggressiveness and sociability in the group.

Maximizing quality of peer reports. If, peer reports are to be used to collect information regarding the frequency of occurrence of specific behaviors occurring in the interactions between two children, the following adaptations to current methodology would appear likely to enhance the quality of the resultant information. First, every child should be asked to rate every other peer for each behavioral item as opposed to nominating one or two peers into a nominal category. In addition, children should be asked to report only on those behaviors which are directed specifically toward them. These two features would allow for a more fine-grained analysis of the changes in social behavior within that dyad: an important feature if one wishes to focus on effects involving specific relationships (Newcomb & Hoza, 1989)

A further potential benefit of asking children to report only on interactions directly involving themselves is that children may be more able to report accurately on events that they personally experience, thereby increasing the external validity/accuracy of these reports. For much the same reason, it was also felt that data generated by this measure should be as similar as possible to the kinds of data typically generated through behavior observational techniques. For this reason, it was concluded that descriptors or items should be phrased in terms of discrete and fairly specific behaviors instead of traits, attributes or styles and roles. In addition, rating-scale anchors should be phrased as much as possible quantitatively or in terms of frequency of occurrence of specific behaviors within a clearly defined time period. Finally, use of rating-scale formats for such behavioral reports should increase the likelihood that the resultant data will meet the distributive assumptions of most parametric statistical procedures.

## CHAPTER SIX

### Goals of Dissertation

The previous five chapters were devoted to the examination of children's friendships, their role in child development as well as ways to assess and improve these close relationships. Based on this review several conclusions were drawn. First, friendship in childhood can be distinguished from other peer relationships by the presence of strong mutual liking. In addition, interactions between friends tend to be typified by high levels of joint play, mutual support, tangible assistance and intimate disclosure.

These close friendships also seem to stimulate development across a variety of domains ranging from the facilitation of cognitive development, the encouragement of exploration of new roles and the development of interpersonal skills important for interpersonal intimacy. In addition, involvement in even a single close friendship appears to moderate the potential negative effects of generally poor peer relations. These findings suggest that friendship enhancement may represent an important intervention strategy with children experiencing difficulties in their peer relationships.

For the most part, previous social skills programs have been geared to generating improvements in overall peer-group status as opposed to stimulating the development of a few close friendships. However, intervention techniques developed in this context might still be adapted to a friendship-focused social skills program. For instance, didactic techniques such as coaching and modeling could be used though intervention efforts would be focused on helping the child improve a small subset of peer relationships rather than changing overall social behavior. As a result, the social skills trainer could function as a relationship consultant helping the child(ren) solve problems that arise in response to the child's ongoing efforts to generate change in these relationships. This focus on social problem solving within a small set of relationships may also help foster maintenance and

generalization of friendship making skills.

If any friendship enhancement program is to be successful, it remains critical that the skills taught be genuinely relevant to the friendship making process. To date, investigation into this process has been limited. In the chapter examining friendship selection and formation, particular attention was given to the possible role played by the communication of liking in friendship development. If the conclusions drawn in that chapter are valid, these relational communication processes would appear to be an important but relatively under studied social process in friendship formation. While many previous social skills interventions appear to have included at least an implicit consideration of communication of liking, to date there has been no intervention study focusing solely on the importance of conveying interest in or a liking for ones peers. With the above points in mind, this project was designed to assess the importance of the communication of liking in the formation of children's friendships. In order to do so it was decided to implement a social skills training program emphasizing the relational messages children send to peers as well as the consequences of failing to convey liking for, and interest in, these classmates.

If relational communication processes are to provide a focus for a social skills training programs, it appeared necessary to develop a measure capable of assessing those social behaviors that have the greatest potential to convey attitudes of liking/disliking, or interest/disinterest amongst children. This was necessary because current measures of children's peers-directed social behavior, such as the Minnesota Revision of the Class Play (Masten et al, 1985) and the Pupil Evaluation Inventory (Pekarik et al, 1976), do not focus on interactions specific to the dyad in question. Rather, they tap perceptions of other children's general behavior in the referent group (e.g., 'Someone who causes trouble', 'helps others'). In addition, most of the items in these measures really do not focus on social transactions but, rather, tap perceptions of overall social competence (e.g.,

'someone who is smart', has 'many friends'). As a result, an instrument is needed which measures only interactions directly involving that child and the classmate he/she is rating.

These behaviors should be those that have been empirically demonstrated to be highly related to impressions of liking. In addition, the review of the literature indicated that the social relevance of selected target behaviors should not be assumed even if a group of knowledgeable adults intuitively feel that these behaviors likely represent important ingredients for (social) success. Even with initial item selection, any steps taken to enhance social relevance should improve the quality of the resultant measure.

Once identified, these behaviors need to be incorporated into a measure of social transactions that serve to communicate liking between children. Based on the analysis of the literature presented earlier, it was decided that such a measure should incorporate the following characteristics:

- It should be designed to make use of peers as informants.
- It should be formatted in such a way that the resultant data is ordinal rather than dichotomous or nominal.
- The scaling used should be based on frequency of occurrence of the specified behavior(s) within a discrete time period.
- This time period should be short enough to be sensitive to intervention effects.
- The measure should also require children to rate the behavior of each other peer individually and solely in terms of the behaviors that were directed specifically to the rating child.
- Finally, in an effort to ensure that items on this scale will likely tap behaviors that do tend to convey affective orientation, it was felt that the initial selection of items should have some empirical basis.

It was expected that if these characteristics were combined, the result should be a fairly valid and reliable measure of behavioral communication of liking between children. One of the goals, in particular of study #3, was to assess the psychometric properties of the

resultant behavioral communicators of liking scale.

This measure was also designed for use as an outcome measure in a subsequent intervention study. In this way, it was hoped that a more accurate assessment of relational communications between children would be possible. This was important since the elaboration of the role of communicating liking and interest requires the following steps (Ladd, 1985). First it would be necessary to identify children who had very few or no close friends and who were engaging in few of the social behaviors identified as strong conveyors of liking. The next step would be to expose these children to a social skills program focusing on changing behaviors believed to be important conveyors of liking. Concomitant changes in these behaviors and in the amount selected peers liked the child enrolled in this social skills program could then be treated as evidence supporting a conclusion that relational communication did play a role in friendship formation.

Summarizing, this project was designed to address several concerns. First, it was hoped that this research would lead to the development of a direct measure of those social transactions which have a high potential to convey attitudes of liking/disliking amongst children. Such a measure would allow clinicians to more accurately assess the relational communications of children who are experiencing difficulties in their peer interactions. In addition, once this measure had been developed, its clinical utility could be assessed in the context of a social-skills training program for children who have been identified as experiencing considerable difficulty in their peer relations. Unlike previous interventions which have tended to focus on discrete social skills such as group-entry behaviors (e.g., Ladd, 1979; Oden & Asher, 1977; Putallaz & Gottman, 1985), or social cognitive deficits such as limited hypothetical knowledge about friendship making (e.g., Gottman, Gonso & Rasmussen, 1975), the intervention program proposed herein emphasized the relational messages conveyed by children and the consequences of failing to convey liking of, and interest in, ones peers. In addition, this intervention, in terms of both its focus and struc-

ture, was designed to promote the ability to form, maintain and enhance specific relationships. Importantly, in doing so, it is hoped that valuable information will be gleaned concerning the role of relational communication processes in friendship development as well as the efficacy of focusing on enhancing particular relationships within a social skills intervention program.

## CHAPTER SEVEN

### Brief Overview of Dissertation Research

Much of the previous work in the area of children's peer relations has focused on how one child's behavior may influence other children's liking for that child or on children's appreciation of the relationship between their own behavior and how much peers like them. In contrast, the goal of this dissertation was to consider how a child's behavior conveys their own level of liking for the recipient of these behaviors. Accordingly, this research involved four different studies each of which was designed to further this investigation of the relational impact of the communication of liking between children.

#### Study 1

In Study 1 the goal was to identify a set of behaviors that might function as communicators of liking between children. To this end, individual structured interviews were conducted in which children were asked to identify the behaviors that they felt had shaped their perceptions regarding classmates' liking for them. These same children also rated pre-selected behaviors in terms of the direction and strength of inference they would draw concerning another child's feelings toward them if this child had directed that behavior toward them. Items for a behavioral communicators of liking scale were then tentatively selected on the basis of these data.

#### Study 2

Before including these behaviors on this scale, the relational communication value of each behavior was also cross-validated by having another sample of children read hypothetical vignettes incorporating behaviors selected for the scale. In each vignette, a

focal character was involved in a different social transaction with each of three other characters. The transaction with the first peer involved a single positive incident which was related to one of the behaviors to be included on the behavioral communicators scale. With the second peer, the incident was affectively neutral. An example would be being placed on the same gym team by the teacher. Finally, the last character in the vignette engaged in a negative transaction which was the opposite of the first peer's behavior. After reading each vignette, children were asked to rate, on a seven point scale, how much they thought each peer in the vignette liked the focal child. Based on children's responses, the potency of each of these behaviors for conveying liking was then assessed.

Study 3

Once the communicative potency of behaviors had been cross-validated, the resultant items were formatted in a three-point quantitative scale as illustrated below.

	Never	One or two times	More than twice
In the last month, how often have the following children.....(e.g., shared a secret with you)			
Brook F.	1	2	3
Jocelyn R.	1	2	3

The psychometric properties of the resultant Behavioral Communicators of Liking Scale (BCOL-Scale) as a measure of social transactions conveying liking were then evaluated by

administering this measure along with several other measures to a new sample of grade-five children. These other measures included a rating-scale peer sociometric measure, a Peers' Impressions of Liking Scale and another peer-report measure designed to assess general social behavior as well as socially relevant traits and attributes (The Minnesota Revised Class Play). The peer sociometric was included to assess predictive validity of the BCOL-Scale since the model proposed for the role of relational communication in friendship formation predicted that the communication of liking should stimulate a similar affective response from the recipient of this relational message. The Peers' Impressions of Liking Scale was included as a direct measure of children's impressions of how much every other classmate liked them. In this way, the convergent validity of the BCOL-Scale as a measure of social transactions conveying relational intent could be assessed. Finally, the Class Play was administered so that the discriminant validity of the BCOL-Scale could be evaluated.

The following predictions were made concerning the likely patterns of inter-relationships between the measures administered in this study. The first expectation was that there would be a strong correlation between how much any child liked any other child (sociometric ratings) and how much this first child thought the other child liked him or her (peers' impressions of liking). In addition, it was predicted that scores on the BCOL-Scale would correlate more highly with peers' impressions of liking than would scores on the Class Play. This predictive advantage for the behavioral communicators of liking scale was expected to be greatest when ratings given to and by specific children (i.e., unaggregated data) were considered.

#### Study 4

This study involved clinical interventions with highly rejected children. Actual social skills training focused on relational communication processes. Candidates for social

skills training were identified on the basis of BCOL-Scale scores, sociometric ratings, and consultations with school officials. The primary criterion for selection was the receipt of highly negative sociometric ratings. This criterion was adopted for several reasons. First, as noted in chapter 2, involvement in even one close friendship has been found to mitigate possible negative effects of generally poor peer relations. In addition, several researchers (e.g., Furman & Robbins, 1985) have argued that the development of a few friendships may represent a realistic goal for social skill interventions with generally rejected children. For both reasons, the application of a friendship focused social skills program with this population seemed appropriate.

In addition to the previous sociometric selection criterion, in order to be considered for training children also had to have received a mean BCOL-Scale score falling below the thirty-third percentile for their class. The purpose of this second criterion is to ensure that targeted children were likely communicating disinterest or disliking to peers or at least failing to communicate positive affect.

Using these criteria, two children from each of twelve grade-five classes received these interventions. These were conducted in two waves with one child in each class randomly assigned to a wait-listed control group. Children in both treatment and wait-listed groups took part in ten weekly one-hour individual social skills training sessions but at different times. These interventions featured both skills coaching and ongoing relationship problem solving. In the first two sessions children were given a fairly standardized presentation of the potential role of relational communication in friendship development. Then, the likely relational messages being conveyed by that child's peer interactions was considered. In this way, the coaching moved from a fairly conceptual and general focus to a more concrete and specific focus in which the discussion centered on the actual interactional 'style' of that child.

At this point, the focus of the intervention program shifted to a small number of

the child's peer relationships which the child had indicated an interest in improving. Specifically, the child was encouraged to communicate liking and an interest in becoming friends with these friendship targets by directing those behaviors to them which had been identified in study 1 and 2 as potentially strong communicators of such liking. This was achieved through the use of weekly behavioral assignments. Each week, targeted relationships were reviewed in order to assess the effects of these 'behavioral' assignments, to assist in solving any problems that may have arisen, and to encourage further effort.

Outcome measures included sociometric ratings, the Behavioral Communicators of Liking Scale, The Peers' Impressions of Liking Scale, and the Minnesota Revised Class Play. It was predicted that the social skills training program would lead to an improvements primarily in those relationships targeted for focused friendship making efforts. Furthermore, it was expected that any improvements in sociometric ratings of liking received by children in this social skills program from these friendship targets would covary with changes in the impressions reported by peers in terms of how much they felt treatment children liked them as well as with changes in the levels of 'friendly' behaviors directed by children in the social skills program toward these targeted peers. In addition, it was expected that for children receiving social skills training (See Chapters 3 and 6), changes in behavioral-communication-of-liking scores would better predict changes in impressions of liking and social preference between children than would comparable scores on the Class Play.

## CHAPTER EIGHT

### Study 1

#### Identification of Possible Behavioral Communicators of Liking Between Children

##### Purpose

The overall goal of this project was to explore the role played by the communication of liking in the development of children's friendships. The first stage of this investigation involved the identification of those social behaviors with the strongest potential for conveying these feelings. To this end, a group of children were interviewed concerning the incidents which had shaped their impressions regarding who liked or disliked them in their class. In addition, children were asked what their impressions might be if a hypothetical peer directed one of several prespecified behaviors toward them. Asking children about how their own impressions had been formed served as a check against the possibility that some important behavioral indicators of liking might have been inadvertently overlooked by the adult panel which generated the initial item pool. At the same time, since children might experience some difficulty reporting all of the behaviors which helped shape their impressions, it also seemed important to assess the hypothetical communicative value of a wide range of prespecified behaviors. Items were retained if children's responses indicated that the behavior(s) involved did have the potential to shape their impressions regarding classmates' feelings toward each other. New items were added primarily if the frequency with which children spontaneously mentioned any behavior suggested that this otherwise overlooked behavior might also play an important role in conveying liking between children.

## Method

### Subjects

Sixty-five students from two Grade-5 and one Grade 5/6 class participated in this study: 30 boys (mean age, 11.4 years) and 35 girls (mean age, 11.5 years). This age group was selected both for this and subsequent studies because previous research indicates that by this age children are aware of the relational significance of many behaviors associated with friendship (see Chapter 1). Thus, it was expected that relational communication might be a relevant interpersonal process for these children.

In order to ensure a relatively broad sample, these three classes were selected from three different schools in the Ottawa-Carleton area. Even so, there appeared to be a relatively high degree of similarity across these three schools in terms of the socio-economic and ethnic profiles of students. This population was primarily anglophone but included children of francophone and European background. All three schools were situated in middle socio-economic areas. Only students with parental permission participated in this study.

### Interview Protocol

Children were interviewed individually by a male graduate student for approximately fifteen minutes in a small room provided by the school(s) for this purpose. The study was presented as an investigation into the ways boys and girls formed impressions regarding who liked or disliked them. It was stressed to students that their answers would be treated as confidential. Children were also asked to refrain from discussing the interviewing process until all interviews from that class were completed. It was emphasized that people very likely differed in the ways they formed impressions regarding who liked them and so there were really no right or wrong answers to the questions that they would

be asked. Students were also informed that their participation was voluntary and that they could withdraw from the study at any point. Any questions the student had at this time were answered in such a way so as to establish rapport and put the student at ease. Subsequently, eight questions were asked regarding that child's impressions of classmates liking for him/her as well as the basis for these impressions. These were:

- 1) How do boys your age let others know they like them?
- 2) Of the boys in your class, who do you think likes you the most? Why do you think he likes you?
- 3) Of the boys in your class, who do you think likes you the least? Why do you think he doesn't like you?
- 4) How do girls your age let others know they like them?
- 5) Of the girls in your class, who do you think likes you the most? Why do you think she likes you?
- 6) Of the girls in your class, who do you think likes you the least? Why do you think she doesn't like you?
- 7) Think of someone who you think likes you even though you are not best friends. What gives you the impression that they like you?
- 8) Think of someone who you think doesn't like you even though you are not really enemies. What gives you the impression that they do not like you?

The order of presentation of these question depended on the gender of the child. Each child was first asked 3 questions concerning impressions of liking/disliking in the context of same-sex relationships. Next, three parallel questions pertaining to opposite-sex relationships were presented. These were followed by two questions (#7,8) not tied to any

specific gender, but rather were concerned with less extreme instances of positive and negative peer relations.

Within these eight questions, the following prompts were used. First, when a child gave only one behavior/action in response to a question, he/she was asked if there were any other ways, for example, he/she knew a particular girl liked him/her. This prompt was given up to a maximum of three times in order to establish the expectation of elaboration. Only two other queries were made in response to children's replies. Both involved requests for clarification. If it was not clear what was the behavior which was being referred to, the child was asked to explain what he/she meant. This rarely occurred. If the child's response involved a very general descriptor (e.g., "she's nice to me"), the child was asked if there were any particular ways in which that peer, in this example, "was nice" to the respondent which showed that this classmate liked him/her. This prompt was designed to ensure that specific behaviors (e.g., teasing, sharing school supplies) were not missed as the result of any tendency for children to rely on very general responses.

After the child had responded to these questions, he/she was queried about the inferences he/she might make regarding another child's social inclinations if this other child directed one of several prespecified behaviors toward them. These behavioral items were generated by a panel of eight graduate students involved in the delivery of social skills training with children and their supervisor using an organizational framework adapted from the 'Arizona Social Support Interview Schedule' (Barrera, 1980). Specifically, eight to nine behavioral items were created for each of the following dimensions: general helpfulness, social involvement, positive feedback/evaluation and talking about private feelings. Behaviors selected were those which members of this panel thought might have the greatest potential for conveying liking in this age group. Of these items, the majority involved positive or prosocial behaviors. This emphasis was chosen because the focus of this research was on friendship formation and positively reinforcing

behaviors generally have been found to be more related to levels of liking than have aversive behaviors (Gottman et al. 1975; Charlesworth & Hartup, 1967). The following are the 34 behavioral items generated by this panel:

- general helpfulness

- a) lent you something you needed
- b) defended you when someone was giving you a hard time
- c) refused to help you or to lend you something when you needed it.
- d) gave you some advice on how to solve a problem
- e) shared a snack or a toy with you
- f) asked you for your opinion or help
- g) explained to you something you wanted to know
- h) Physically hurt you
- i) Tattled on you

- social involvement (participation)

- a) came up to you and said "hi"
- b) asked if you would like to go somewhere with them after school
- c) wouldn't let you join in a game or activity
- d) told you to get lost
- e) asked if you would like to play with them
- f) stood or sat down beside you
- g) started talking to you
- h) picked you for their team or a classroom activity group
- i) phoned to talk to you at home

- positive feedback / evaluation

- a) said something nice about you
- b) told you they were glad that you were their friend
- c) called you names or teased you
- d) laughed at you when you made a mistake
- e) were cheerful and smiled at you
- f) told you they liked your work
- g) bragged about how much better they were than you
- h) cheered for you or encouraged you

- sharing private feelings/events

- a) told you a secret about themselves
- b) told you a secret about someone else
- c) talked to you about something that happened in class
- d) asked about how you were when you felt hurt or sad
- e) weren't interested in what you had to say
- f) paid attention to what you were saying
- g) asked how you were doing
- h) shared some important news with you

For each of these 34 items, children were asked to pretend that a new classmate came up to them and directed only that behavior toward them and then to guess what their impression might be regarding how much that hypothetical classmate liked or disliked them. In order to reduce the possibility of children attempting to anticipate desired responses, children were also reminded that there were no right or wrong answers in this task other than that which reflected their own opinion. Children's responses concerning their expected impressions were then recorded by the interviewer on a seven-point Inference-of-Liking Scale designed in consultation with the teachers of these children in order to ensure that this task was within their capabilities. On this scale a rating of '1' indicated that the child reported that he/she would feel that this hypothetical classmate "Really liked me a lot" while a response of '7' signified a prediction was that he/she would feel that this classmate "Really disliked me a lot". The other 5 points on this scale represented intermediate points between these two extremes. This format is reproduced in Table 1.1.

#### Scoring Procedures

First, the average inference or impression drawn by all subjects for each behavior presented on the hypothetical inference-of-liking scale was calculated. These mean or average inference ratings were then used to compare original items in terms of their respective potentials to convey liking at least in the hypothetical context provided.

Table 1.1  
Format of Hypothetical Inference of Liking Scale

Pretend that Leslie is a new child in your class. Imagine that Leslie did each of the following things to you. Then, circle how much you would feel that Leslie liked you

IF THIS CLASSMATE.....I WOULD FEEL THAT THIS PERSON:

	Really liked me a lot	Liked me a fair bit	Sort of liked me	Not sure	Sort of didn't like me	Disliked me a fair bit	Really disliked me a lot
lent you something you needed	1	2	3	4	5	6	7
laughed when you made a mistake	1	2	3	4	5	6	7
shared a snack or a toy with you	1	2	3	4	5	6	7

Responses to structured interview questions were then scored by three graduate students involved in a graduate-level social-skills research and training seminar. Each interview transcript was scored independently by all three coders. In this coding, the percentage of children mentioning any behavioral category was of primary interest. Thus, any behavior/response was recorded only once if it was encountered during the protocol of a given child regardless of the number of times that child had mentioned that behavior in response to the eight questions asked.

When a child reported a behavior which had not been included in the initial pool of items, these behaviors were coded in one of the following ways. First, if that behavior was essentially equivalent to an initial item but had a different wording (e.g., "compliments me" might be considered equivalent to "says nice things about me"), the response was coded under the original item with note being made of the occurrence of this alternative wording. Second, if a behavior was reported which represented a smaller subset of the behaviors that might fall within a particular original item (e.g. "punches me in the face" could be viewed as a subset item of "physically hurts me") this subset response was coded under the original, more comprehensive item and the subset response treated as a different wording. In the case of partial overlap of behavior categories (e.g., "asks me questions" versus "asks my opinion or help") responses were not coded under the original behavior category but rather under a new response heading. Similarly, if a behavior was reported which was totally unlike any of the original items, this response was recorded under a new behavior response category. Any subsequent similar responses were then coded under this new category. Finally, many children gave two very general responses ("is nice to me" and "is mean to me") in addition to mentioning specific behaviors. It was decided to treat these two responses as very general categories but not to code other, more specific responses as subset responses for these two general categories since such a procedure would have resulted in only two response categories being coded. This was the only modification made in the coding rules described above.

Within this coding system, each coding decision was made independently by each of the three judges and then reviewed by these three judges together in order to reach consensus. In this way, discrepancies in any single coding decision could be discussed and resolved before proceeding to the next response which was again coded independently. Coding was conducted in this sequential or step-wise manner in order to provide for the development of new coding categories and thus permit each judge to approach every new

coding decision with the same set of categories. Using this approach, differences in independently arrived at coding decisions were infrequent. The initial inter-judge agreement rate (Number of agreements / Total number of decisions) between different pairs of these three coders ranged from .82 to .87 with disagreements involving primarily the issue of whether a response represented a subset of a larger category or where there was partial overlap between a given response and an existing response category.

### Results

The 65 children who participated in the study generated 942 codable responses to questions concerning their impressions regarding how much various classmates liked them. This represents an average of 14.5 different behaviors being reported per interview. Of these responses, 333 or 34.7% fit the 34 pre-existing behavior categories. Another 531 responses were coded into 31 new categories mentioned by at least three children. The other 78 responses were fairly idiosyncratic and, for the sake of brevity, will not be included in the data summaries displayed in Table 1.2. On this table, those items with a numeric tag prefaced with an 'i' are from the initial pool of items presented on the Hypothetical Inferences of Liking Scale. Items with a numeric tag prefaced with a 'n' are new items representing response categories developed in the process of coding these interviews. Generally, these new items are presented after the initial items on Table 1.2 except in those cases where initial and new items were later combined in order to make a more effective item. In these instances related items are presented in sequence.

The first column after each initial item contains a difference score. This score was calculated by subtracting the value of '4', representing a neutral response on the hypothetical impression-of-liking scale, from the mean inference-of-liking rating children made for that item. A positive difference score indicates a mean inference of disliking with larger positive difference scores indicating more extreme predicted impressions. Negative

mean difference scores indicate an average inference of liking with higher absolute values again indicating a more extreme impression. Only initial items have such difference scores since these were the only items for which children were asked to predict their impression if that behavior had been directed toward them.

In the second column is a  $t$ -value calculated by dividing the difference score in column 1 by the standard error of the mean for that item using procedures outlined by Welkowitz, Ewen and Cohen (1982, pp. 133-136). The primary reason for using these  $t$ -values for item selection purposes was to take into account the variability in inference or impression ratings occurring across this sample for any one item. High variability in responses for any item would indicate less consistency in the impressions of liking associated with that behavior. As this variability and the related standard error increases for any behavioral item, the  $t$ -value associated with that item will drop. Every  $t$ -value in column 2 is followed by a number in parentheses which represents the relative ranking of these T-tests on the basis of absolute values. Lower rank scores indicate a higher absolute  $t$ -value and thus both a stronger and relatively more reliable impressions of liking based on that item.

The third column on Table 1.2 presents the proportion of children in this sample spontaneously reporting that particular behavior as contributing to the impression they had formed regarding how much another peer liked them. The number in parenthesis following this proportion represents the rank value of this proportional score with lower scores indicating that a relatively higher percentage of children mentioned this behavior. Finally, the last column details the actual number of students who reported each behavior. The first number in each series represents the total number of children who reported that behavior, the second indicates the number of males and the third, the number of females who reported that item.

Table 1.2  
Hypothetical Impression Scores and Frequency  
of Spontaneous Mention for Different Behavioral Items

	Item	Inference Score Minus 4	T-test for Inference Score	Proportion of children spontaneously reporting	Frequency of spontaneous report
i1	lend you something you needed	-1.81	-17.3 (18)	.26 (18.0)	17/8/9
i2	laugh at you when you made a mistake	1.62	12.9 (26)	.03 (56.5)	2/0/2
i3	physically hurt you	2.60	29.1 ( 5)	.28 (16.0)	18/10/8
n1	fight with you			.20 (24.0)	13/8/5
i4	share a snack or a toy with you	-2.14	-24.6 ( 7)	.55 ( 5.0)	36/15/21
i5	told you to get lost	1.94	17.3 (18)	.06 (50.5)	4/2/2
i6	told you a secret about themselves	-1.99	-15.0 (20)	.28 (16.0)	18/2/16
i7	gave you some advice on how to solve a problem	-1.97	-17.3 (18)	.05 (53.0)	3/0/3
i10	told you a secret about someone else	-1.14	8.9 (24)	.03 (56.5)	2/0/2
i8	picked you for their team or classroom activity group	-2.19	-20.8 (10)	.14 (39.0)	9/6/3
n2	pick you for their project or study partner			.17 (31.5)	11/4/7
i9	bragged about how much better they were than you	1.48	10.6 (31)	.02 (60.5)	1/0/1
i11	share some important news with you	-2.09	-17.7 (16)	.00 (64.0)	0/0/0
i12	defended you when someone was giving you a hard time	-2.60	-31.0 ( 3)	.29 (13.5)	19/9/10

Table 1.2 (cont.)

	Item	Inference Score Minus 4	T-test for Inference Score	Proportion of children spontaneously reporting	Frequency of spontaneous report
i13	asked you for your opinion or help	-2.00	-19.0 (13.5)	.03 (56.5)	2/1/1
i14	told you they liked your work	-2.00	-19.0 (13.5)	.02 (60.5)	1/1/0
i15	came up to you and said hi	-1.01	-8.0 (34)	.12 (42.0)	8/3/5
i16	called you names or teased you	1.94	13.6 (25)	.46 ( 7.0)	30/17/13
n3	talks behind your back/say mean things about you			.22 (21.5)	14/4/10
i17	asked about how you were when you were hurt or sad	-1.88	-13.8 (24)	.12 (42.0)	8/4/4
n4	helps me when I'm hurt			.35 (10.5)	23/10/13
i18	wouldn't let you join in a game or activity	1.55	11.2 (29)	.23 (20.0)	15/7/8
n5	excluded you			.20 (24.0)	13/6/7
i19	said something nice about you	-2.08	-19.6 (12)	.03 (56.5)	2/1/1
i20	weren't interested in what you had to say	1.23	8.2 (33)	.17 (31.5)	11/3/8
i21	paid attention to what you were saying	-2.15	-20.9 ( 9)	.05 (53.0)	3/1/2
i22	started talking to you	-1.55	-14.8 (21.5)	.65 ( 3.0)	42/17/25
i23	asked if you would like to go somewhere with them after school	-2.52	-29.7 ( 4)	.12 (42.0)	8/2/6
n6	invites you to their house			.48 ( 6.0)	31/13/18
n7	do things with you			.28 (16.0)	18/7/11
n8	hang around with you			.40 ( 8.0)	26/10/16

Table 1.2 (cont.)

	Item	Inference Score Minus 4	T-test for Inference Score	Proportion of children spontaneously reporting	Frequency of spontaneous report
i24	tattled on you	1.51	12.0 (27)	.05 (53.0)	3/1/2
i25	told you they were glad they were your friend	-2.68	-35.2 ( 2)	.00 (64.0)	0/0/0
i26	phoned to talk to you at home	-2.29	-24.1 ( 8)	.17 (31.5)	11/4/7
i27	refused to help you or lend you something when you needed it	1.49	11.1 (30)	.08 (48.5)	5/3/2
i28	cheered for you or encouraged you	-2.37	-25.2 ( 6)	.08 (48.5)	5/5/0
i29	ask how you were doing	-1.66	-14.8 (21.5)	.02 (60.5)	1/1/0
i30	talked to you about something that happened in class	-1.52	-11.3 (28)	.00 (64.0)	0/0/0
i31	stood or sat down beside you	-1.70	-14.0 (23)	.20 (24.0)	13/5/8
i32	smiled at you and were cheerful	-2.06	-20.1 (11)	.22 (21.5)	14/4/10
i33	explained something you wanted to know	-1.94	-18.5 (15)	.02 (60.5)	1/0/1
i34	asked you if you'd like to play with them	-2.59	-35.9 ( 1)	.32 (12.0)	21/10/11
n9	play with you			.92 ( 1.0)	60/29/31
n10	joke or goof around with you			.35 (10.5)	23/14/9
n11	laughs at my jokes			.18 (28.0)	12/10/2
n12	nice to you			.78 ( 2.0)	51/22/29
n13	swears at you			.09 (47.0)	6/3/3
n14	interferes with your game			.11 (49.0)	7/5/2

Table 1.2 (cont.)

Item	Inference Score Minus 4	T-test for Inference Score	Proportion of children spontaneously reporting	Frequency of spontaneous report
n15 looks at you			.18 (26.0)	12/6/6
n16 asks me questions			.15 (36.0)	10/4/6
n17 gives me dirty looks			.15 (36.0)	10/1/9
n18 mean to me			.25 (19.0)	16/4/12
n19 boss or push you around			.29 (13.5)	19/8/11
n20 tells others they like me			.15 (36)	10/3/7
n21 tells me they like me			.18 (27.5)	12/4/8
n22 works out problems			.12 (42.0)	8/2/6
n23 ignores or avoids you			.60 ( 4.0)	39/16/23
n24 argues with you			.11 (45.5)	7/4/3
n25 polite to you			.18 (27.5)	12/3/9
n26 help you with your school work			.39 ( 9.0)	25/12/13
n27 willing to go along with what you want			.17 (31.5)	11/4/7
n28 threatens or scares you			.06 (50.5)	4/1/3
n29 gets mad at you			.15 (36.0)	10/6/4
n30 interested in the same things as you			.15 (36.0)	10/4/6
n31 enjoys my company			.12 (42.0)	8/2/6

**Note** Numbers in parenthesis indicates rankings by items. For T-tests of hypothetical inferences (all significant at  $p < .05$ ) these rankings are for original items only. Rankings for proportion of children spontaneously reporting based on both initial and new items. For both rankings, lower rank values indicate stronger potential to convey interest and liking. For frequency of spontaneous report, the first number represents the total number of children reporting, followed by the number of boys and then the number of girls who mentioned that item.

### Item Selection

The following a priori criteria were used, in conjunction with the data presented in Table 1.2, to select behaviors for inclusion in the social interaction measure used in subsequent studies:

Item retention (criterion A). Items from the initial set were considered for retention if they received a mean rating from all children on the Hypothetical Inferences of Liking Scale that was significantly different from 4.0 (neutral point on this scale). Significance was tested using a standard T-test for comparing a group mean with a given value (Welkowitz et al, 1982, pp. 133-136). Since all initial items had mean inference or impression values significantly different from '4' at  $p < .05$ , no initial items were deleted for this reason.

Item retention (criterion B). Initial items, to be considered for the final measure, also had to represent a behavioral category that had been spontaneously reported by at least 10% of the interviewed children in explaining their impressions regarding other classmates' social inclinations. This criterion resulted in the elimination of 17 items (i2, i5, i7, i9, i10, i11, i13, i14, i19, i21, i24, i25, i27, i28, i29, i30, i33)

Item modification (criterion C). When an original item met the above criteria, changes in wording were considered for one of two reasons. First if an alternative form of expression for that item had been used by the more children than the original phrasing of that item, item wording was modified to reflect this usage as long as this did not result in a loss of clarity regarding the referent behavior. This resulted in changes in the wording of six items: i1, i6, i12, i22, i26, and i31.

Item modification (criterion D). If a particular behavior representing a subset of all those behaviors potentially covered by an initial item was mentioned more frequently

than the general behavioral category, the initial item was to be reworded to place increased emphasis on this behavior while also retaining its more general scope. This criterion resulted in no original items being reworded.

Item combination (criterion E). Given the practical limitations regarding the length of the measure for which items were being selected, as well as the desire to assess as broad a range of interactions as possible, some new behavioral categories were combined with initial items when a) these new items were already partially overlapped with the original items, b) this new item had been mentioned by at least 20% of the subjects or by a higher percentage of subjects than the related initial item, and c) it was felt that combining these items did not result in a loss of clarity/specificity for that item. This criterion resulted in the following items being combined: i8 with n2, i16 with n3, i17 with n4, i18 with n5, and i23 with n6. In addition, under criterion F, items i34 (ask you if you'd like to play with them) and n9 (play with you) should also have been combined. In this instance, however, it was decided to retain item i34 unchanged because it represented the initial item with the strongest inference value as assessed by the hypothetical impression scale and because these two items had a very high degree of overlap. Thus, after applying criteria A through F the following items were still candidates for retention in their original form: i3, i4, i15, i20, i32, i34. All others had either been deleted or modified.

Item addition (criterion F). It was also expected that children might mention behaviors that did not correspond closely to any of the initial items or behavioral categories. When such an item was mentioned by more than twenty percent of the children interviewed, this behavior was retained as a new behavior category for the final interaction scale providing that the inclusion of this item did not result in the deletion of any initial item that had been mentioned more frequently (see also criterion H). This criterion resulted in the following new items being added to the pool: n8, n10, n12, n18, n19, n23

and n26. Two additional items which might have met this criterion were not added for the following reasons: n1 was judged to be a subset item for i3 which was retained unchanged since a greater number of children used the i3 category. As well, item n7 was not added as it was felt to already be represented in items n8, i23-n5, and i34-n6.

Final item deletion (criterion G). If the inclusion of new item(s) on the basis of criterion G resulted in too many items being considered for inclusion on the social interaction measure, the total number of items was to be reduced by dropping those items retained through the application of criteria A,B,C which had the lowest absolute T-test values providing that the frequency of response for those deleted items were less than the new item(s). Initially, the target in terms of the final number of items had been set at twenty. However, when the interview data was reviewed, it was decided to add two very general items and keep a total of twenty-two items for this measure. Thus, application of criterion H only led to the further deletion of items i15, i20.

Final item wording. After the final pool of items had been selected, some items were reworded to ensure a level of reading difficulty suitable for Grade-5 children. This was done using Fry's (1968) readability formula which is based on the average number of syllables per word as well as the average number of words per phrase.

After applying all of the above the selection criteria, the following 22 items were tentatively selected for a scale designed to assess behavioral communication of liking. These items, with root or contributing item numbers placed in parentheses, were:

lend you something when you needed it (i1)

share a snack or a toy with you (i4)

invite you over to their house or to go somewhere with them (i23 + n6)

share something personal or private with you (i6)

ignore or avoid you (n23)  
pick you for their team or as their partner (i8 + n2)  
hang around with you (n8)  
help you with your school work (n26)  
stick up for you or defend you (i12)  
joke or goof around with you (n10 and to a degree n11)  
help you when you were hurt or sad (i17 + n4)  
boss or push you around (n19)  
tease or say mean things about you (i16 + n3)  
sit beside you or stand in line with you (i31)  
exclude you or not let you join (i18 + n5)  
in a game or activity.  
talk with you (i22)  
were mean to you (n18)  
were nice to you (n12)  
phone you (i26)  
smile at you and were cheerful (i32)  
ask you if you would like to play with them (i34 + n9)  
physically hurt you (i3)

#### Item Pool Comprehensiveness

A total of 654 or 68.3% ( $654/942 \times 100$ ) of all the behaviors spontaneously reported by children as the reasons why they felt certain peers liked or disliked them were represented by the final 22 items. On average, each of these final items described behaviors mentioned in 29.7 of the 65 interviews conducted. The remaining 288 responses not represented in this final item pool were distributed across 90 different behavior categories

including the 17 original items deleted as the result of these interview data. The average frequency of response for these non-included behaviors was, therefore, 288 / 90 or only 3.20 times across these same 65 interviews.

### Gender Differences

The possibility that there might be important differences in the types of behaviors used by males versus females in deciding how much others like them was also considered. This was done in two ways. First, mean hypothetical inference or impression ratings made by for both male and female respondents were compared for each initial item. This was accomplished through a series of 34 *t*-tests using separate variance estimates for each gender group as these were not equal in size. A fairly relaxed per comparison alpha criterion of .05 was adopted for these *t*-tests in order to protect against prematurely concluding an absence of any gender differences for these hypothetical inferences. Even so, only one significant difference was found between the hypothetical inferences or impression ratings girls and boys. This was for item i7 ("gave you some advice") on which the difference in group means were significant at the .03 level. Since the probability of finding at least one significant result in this many comparisons was .83 (Bonferroni probability =  $1-(1-.05)^{34}$ ), it would appear that both boys and girls in this sample drew similar inferences regarding a (hypothetical) peer's level of interest in or liking for them on the basis of those behaviors assessed using the Hypothetical Inferences of Liking Scale. Mean inference values for both gender groups as well as related *t*-test scores for these group comparisons are presented in Appendix A.

It was also possible to examine differences in the frequency with which boys and girls spontaneously mentioned different behaviors in explaining their impressions regarding the social inclinations of actual classmates. This issue was addressed by calculating a Spearman rank order correlation coefficient between rank orderings based on frequency of

spontaneous mention for boys and similar rank orderings for girls. If, within both groups, each item had exactly the same ranking in terms of relative frequency of spontaneous mention, the resultant correlation would be +1.0 while no agreement in rank values would result in a correlation of .00. In order to conduct this analysis, each of the 22 final items were ranked in terms of number of children within each gender group who spontaneously reported each behavior. When all 22 final items were considered, the resultant Spearman coefficient was .69 ( $p < .001$ ) indicating a fairly high level of correspondence. On only four items did boys and girls rank values for any item differ by five or more ranks. These items were: "joke and goof around with you" (2nd most frequently mentioned by boys, 15.5th for girls), "share something personal or private with you" (the least frequently mentioned for boys, 9.5th for girls), "mean to you" (20th most frequently mentioned item for boys, 14th for girls), and finally, "physically hurt you" (ranked 5th with boys and 12.5th with girls) When these four items were removed and the remaining 18 items re-ranked, the resultant Spearman correlation coefficient was .95 ( $p < .001$ ) indicating a very high degree of correspondence between the relative frequency with which both boys and girls in this sample mentioned any of these 18 other items.

#### Summary and Conclusions

This study was designed as a first step in an investigation into the possible role that communication of liking and interest might play in friendship formation and maintenance. In order to conduct such an investigation, it was necessary to first identify behaviors that might be important to this communication process. These behaviors could then be included in a behavioral communicators of liking scale which, hopefully, would facilitate the measurement of such communication processes. To this end, a sample of Grade-5 children were interviewed concerning their current impressions regarding who liked them in their class as well as the impressions they might form if they encountered certain behav-

iors from a hypothetical peer.

Regardless of gender, a surprisingly large number of behaviors were spontaneously mentioned as providing the basis for these children's current impressions regarding who liked and who disliked them in their respective peer groups. In addition, every item presented on the hypothetical impressions scale led to a mean inference that was significantly different from '4' ("wouldn't be sure whether the other person liked or disliked them). Both of these results suggest that many behaviors or social transactions may have the potential to convey information regarding one's level of interest or liking. While these data do not necessarily mean that such inferential processes spontaneously occur, no children reported having difficulty with this task and seemed fairly certain in their predictions of who liked and who disliked them. These children also readily identified the behaviors on which they based these judgments. This would seem to lend some support to the strategy adopted in this research to attempt to assess the communication of interest and liking through appraising those dyad-specific transactions or behaviors that seem to have the most potential for conveying these social inclinations.

On the basis of these data, 22 behaviors were identified as likely having the greatest potential for conveying interest and liking for children of this age group. These items were chosen primarily on the basis of frequency of spontaneous mention in children's explanations of current impressions regarding how much actual classmates liked them. In the case of the initial items, the consistency and strength of inference that these children drew when presented with a hypothetical situation was also considered. On average, the items tentatively selected for inclusion on a behavioral communication of liking scale were mentioned almost ten times as frequently as non-included items and, in the case of those initial items which were either retained or modified, also resulted in stronger more consistent inferences of liking and disliking. Thus, though the final pool of items did not include all behaviors that children might use in constructing impressions

regarding who liked them in their peer group, it did contain the behaviors most frequently mentioned in this sample.

When the characteristics of those items retained are considered, perhaps the most striking feature is that 16 of these 22 items described positive social transactions while only 6 incorporated negative behaviors. While emphasis was placed on positive behaviors in the initial set of items due to the expectation that such positive behaviors might play a more central role in friendship formation, item retention, modification and addition criteria were not designed to generate any a priori advantage for either type of item. Yet, 11 of the 13 behaviors most frequently mentioned in children's spontaneous descriptions of how they had formed their own impressions involved positive items. In addition, although 26% (9 of 34) of the initial items assessed on the Hypothetical Inferences of Liking Scale had been negatively worded, only one of the 15 items which led to the strongest and most consistent inferences of liking or disliking involved a negative behavior.

## CHAPTER NINE

### Study 2

#### Cross-validation of the Potential of Selected Behaviors to Communicate Liking Between Children

##### Purpose

In the previous study, a sample of Grade-5 children were interviewed concerning the behavioral basis of their perceptions of classmates' liking for them. Also of interest in these interviews were the inferences of liking children felt they would draw if various behaviors had been directed toward them by a hypothetical peer. Based on these interviews, 22 behaviors were tentatively identified as having considerable potential to convey interest and liking between children. The present study was designed to assess the generalizability of these results by cross-validating the communicative impact of these behaviors in different sample of grade-5 children. To this end, each behavior was incorporated into a hypothetical vignette portraying a short interactional sequence between a small group of peers. Children in this study then guessed how much the different characters in any vignette liked each other. By examining these judgments, it was hoped that the communicative potential of each behavior could be confirmed.

##### Method

##### Subjects

Two-hundred and sixty-three grade-5 students participated in this study. These children were drawn from 11 grade-5 classes across two school boards in the Ottawa-Carleton area. None of these schools had been involved in the previous study.

This sample included 135 boys (mean age, 10.7 years) and 128 girls (mean age, 10.9 years). Most of these children were from urban, middle socio-economic homes and were primarily European in terms of cultural background. Only children who received parental permission participated in this study. Finally, subjects were randomly assigned to one of four groups of roughly equal size and gender make-up such that the number of boys in any group ranged from 31 to 36 while the number of girls varied from 30 to 34. Each of these four groups received a different set of vignettes.

#### Format of Vignettes

Each vignette involved four characters and a brief interactional sequence designed to assess the communicative potential of a single behavior. In order to do so, both this behavior and its opposite were included in the same vignette. For example, in one vignette the key behavior was helping another child who was hurt while the opposite behavior involved doing nothing to help this injured peer. The final behavior or incident which occurred in any vignette was one thought to be fairly 'neutral' or unlikely to convey much information regarding level of liking or interest.

Two types of vignettes were used in this study. In 'single-agent' vignettes, one character directed a different behavior toward each of the other three characters in the story. In 'three-agent' vignettes, this one character was the recipient of three different behaviors, each one initiated by one of the other characters in that vignette. The choice of format used to present any behavior was determined by which type of vignette provided the simplest story-line for that behavior.

In all vignettes, children were asked to guess how much the character initiating any behavior liked the recipient of that action. These guesses were recorded on seven-point hypothetical inference-of-liking scales placed immediately below each vignette.

Responses on these scales could range from a '1' indicating an inference of very strong liking on the part of the character initiating the behavior to a '7' or an inference of strong disliking. Examples of both types of vignette can be found on the following pages. In addition, all vignettes used in this study have been reproduced in Appendix B.

### Procedures for Administrating Vignettes

Generation of forms. Twenty-one vignettes were constructed for this study though not all were given to every child since this would have made the task very long. Instead, the number of vignettes read by any child was limited to six by constructing several different forms of this task. The first vignette on every form involved two behaviors: "being nice" and "being mean" since these already represented opposites. The other five stories for any form were randomly selected from the remaining twenty vignettes and were unique to that form. These vignettes were also presented in a randomly determined order within any form. Finally, both male and female versions were constructed for each form by using same-sex character names so that children would read only vignettes involving characters of their own gender.

Presentation of vignettes. Within any class, different forms of this task (as described above) were randomly assigned to participating children prior to the actual test session. Children were told that they would be reading six different stories and told that after reading each story they were to try to guess how much different characters in that vignette liked each other. It was emphasized to children that there were no right or wrong answers in this task other than those which reflected their own opinions. The scale used to record these impressions was explained and the difference between single-agent and three-agent vignettes was pointed out. Children were asked to read the question following each vignette carefully so that they would be sure whose level of liking they were to guess.

Example of a Three-Agent Vignette

One day during recess, Chris slipped and scraped his knee on the pavement. Both Jason and Todd saw Chris fall. However, only Jason went over to help Chris. Todd kept on playing. After Chris' knee had been bandaged by the school nurse, he returned to his class. His teacher then put him in the same work group as Andrew.

(Characters in vignette read by girls were named Caryn, Tara, Elsie and Melisa).

Based on just the short story above, how much do you think each of the following classmates likes CHRIS?

	Really liked him a lot	Liked him a fair bit	Sort of liked him	Not sure	Sort of didn't like him	Disliked him a fair bit	Really disliked him a lot
*****							
Jason	1	2	3	4	5	6	7
Todd	1	2	3	4	5	6	7
Andrew	1	2	3	4	5	6	7

Example of a Single-Agent Vignette

When Mike got to school, he saw David sitting on the stairs. Mike smiled at David and said "hi" cheerfully. Later, Mike saw Carl bouncing a ball against the wall. As Mike walked by Carl, he neither smiled nor was cheerful. Then the bell rang. Mike went inside and hung his coat beside Ian's.

(Characters in vignette read by girls were named Donna, Susan, Margot and Tanya).

Based on just the short story above, how much do you think MIKE likes each of the following classmates?

	Really liked him a lot	Liked him a fair bit	Sort of liked him	Not sure	Sort of didn't like him	Disliked him a fair bit	Really disliked him a lot
	*****						
Carl	1	2	3	4	5	6	7
David	1	2	3	4	5	6	7
Ian	1	2	3	4	5	6	7

They were also reminded that their participation in this task was voluntary and that responses would be treated as confidential. Next, both male and female versions of the first vignette (involving "being mean" and "being nice") was read aloud by the test administrator. Children then answered the questions for this vignette by themselves. Once this vignette had been completed, children worked ahead on their own. Each test session lasted less than 45 minutes and children appeared to experience minimal difficulty with this task.

Scoring of vignettes. The inference-of-liking ratings made by each child were recorded separately for the positive, negative and neutral incidents described in any given vignette. Average or mean inferences made by all children completing that particular vignette were also calculated by summing inferences made by all these children and dividing by the number of children involved. Again these mean inference scores were calculated separately for the positive, negative and neutral incidents within each vignette.

## Results

### Effects Related to Type of Vignette

It was not expected that vignette format (single or three-agent) would strongly influence ratings on the hypothetical inferences-of-liking scales. In order to confirm this expectation, average inference-of-liking ratings associated with each format were compared. First considered were inferences of liking associated with the 16 positive behaviors assessed in this study. Of these, being nice to a peer, asking another child to play, phoning the other child, picking a peer as a partner, inviting someone over, sharing something personal, hanging around with another child, and smiling at a peer were all presented in single-agent vignettes. Sharing a snack, lending something to another child,

standing beside a classmate in line, helping a peer who was hurt, sticking up for someone, joking around with another child, talking together, and helping another child with his/her school work were assessed using three-agent vignettes. The average inference-of-liking rating made by all children across all eight positive behaviors presented in one-agent vignettes was 1.49 ( $sd = .92$ ). For the eight positive behaviors embedded in three-agent vignettes the corresponding mean inference score was 1.44 ( $sd = .81$ ). The difference between these two means was not significant when compared within a  $t$ -test designed to test differences in the means of two independent groups ( $T(1183) = 1.07, p > .20$ )

A similar analysis was conducted for inferences of liking made in response to the six negative behaviors evaluated in this study. Of these, being mean and physically hurting someone were presented within one-agent vignettes. The average inference rating received by these two negative behaviors was 6.39 ( $sd = .88$ ). For the four negative behaviors presented in the three-agent format (teasing a classmate, excluding someone, bossing another child around, and ignoring a peer) this average inference of (dis)liking was 6.31 ( $sd = 1.09$ ). Again, the difference between these two means was not significant using a  $t$ -test of differences between two independent groups ( $T(585) = 1.00, p > .30$ ). Judging from these results, it appears that the inferences children made in response to these 22 behaviors were not strongly affected by the format within which any of these behaviors were embedded.

### Gender Effects

These analyses compare the average inference of liking made by boys in response to any given behavior with the average inference reported by girls for that same behavior. Such gender-related differences were assessed separately for each of the 22 behaviors used to construct these vignettes. This was accomplished through a series of  $t$ -tests designed to assess differences in the means of two independent groups. The per-comparison alpha

criterion for each of these contrasts was set at  $.05/22$  or  $.002$  in order to maintain the overall alpha for the entire family of these comparisons at the  $.05$  level (Hays, 1983, pp 435; Myers, 1979, pp 298-300). Using this rather stringent per-comparison alpha no significant differences emerged in inferences of liking made by girls and boys in response to any of these 22 behaviors. Even when a relaxed per-comparison alpha criterion of  $.05$  was applied, only one significant gender difference emerged. This was for "physically hurting" another child. For this behavior, the mean inference of (dis)liking for boys was  $6.42$  ( $sd = 1.16$ ) while the mean inference for girls was  $6.88$  ( $sd = .33$ ). The resultant  $T$ -value for this test was  $T(41) = 2.30$ ,  $p < .03$  when separate variance estimates were used in calculating the standard error for this test. Given the number of between-gender comparisons made, the probability of getting at least one significant between-group difference at the  $.05$  level was  $(1 - (1 - .05)^{22})$  or  $.68$  (Hays, 1981, p. 299). Hence, the fact that only one significant difference emerged, even with a fairly relaxed alpha criterion of  $.05$ , indicates the boys and girls in this sample tended to draw similar conclusions regarding level of liking on the basis of each of these 22 behaviors. As a result, data regarding inferences of liking were collapsed across both gender groups in subsequent analyses.

#### Difference Between Mean Inferences of Liking Associated with Specific Behaviors and the Neutral Point on This Scale

This section addresses the issue of whether any of the behaviors used to construct these vignettes consistently led to inferences of that differed significantly from a rating of '4' indicating uncertainty regarding level of liking. In order to answer this question, it was necessary to calculate mean inference scores associated with each of the behaviors these vignettes were designed to evaluate. Once these mean inference values had been calculated for each behavior of interest, differences between the mean inference

of liking associated with any behavior and the neutral point for this scale (4) were tested using the formula suggested by Welkowitz et al (1982, pp. 133-138) for testing the difference between the mean of a single group and a given value. Since the mean inference-of-liking value for each behavior was tested separately, the per-comparison alpha criterion for assessing differences from the neutral point on this scale was set at  $.05/22 = .002$  in order to maintain the family-wise alpha criterion at .05. These mean inference-of-liking values, the standard deviations in the inference-of-liking ratings used to generate these means and the resultant  $t$ -values for each behavior are listed below in Table 2.1.

Every one of these tests produced fairly large and significant  $t$ -values using a stringent per comparison alpha of .002. For the positive behaviors assessed in this study, these differences were all in the direction indicating inferences of strong liking with the average rating across all of the positive behaviors evaluated in this study being 1.47 ( $sd = .87$ ). The opposite occurred with negative behaviors. All mean inferences of (dis)liking based on the six negative behaviors considered in this study were significantly different from the neutral point on this scale in the direction signifying judgments of disliking. When the inferences of disliking associated with these negative behaviors were considered collectively, the average inference rating given by all children reading any of these vignettes was 6.36 ( $sd = 1.03$ ).

#### Difference in Inferences of Liking Based on Various Key Behaviors and inferences

##### Associated with Neutral Incidents

In all vignettes, a neutral behavior or incident was included as a distractor. This was done to lessen any tendency for children to develop a response set of simply making one inference of strong liking and another inference of strong disliking in response to any vignette regardless of the behaviors involved. These neutral incidents ranged from actual behaviors such as hanging one's coat up beside that of another character to events such as

Table 2.1

Mean Inferences of (Dis)Liking For Each Behavior and the  
T-test Values for Differences Between these Mean Inference  
Values and the Neutral Point on this Scale

Key Behavior	Mean	sd	T-value for test of difference between mean inference and neutral point (4)
lend something	1.48	.87	-22.61
share snack with classmate	1.33	.60	-34.68
invite peer over	1.32	.72	-31.16
share something personal	1.52	1.28	-15.09
pick child for team/partner	1.54	.96	-21.21
hang around with peer	1.47	1.07	-19.46
help with school work	1.55	.81	-24.75
stick up for another child	1.52	.82	-24.53
joke with peer	1.46	1.05	-19.84
help when hurt/sad	1.22	.58	-40.88
sit/stand beside	1.64	.98	-18.73
talk with classmate	1.32	.71	-30.80
be nice to another child	1.51	.74	-55.36
phone peer	1.73	.91	-20.27
smile at another child	1.77	1.39	-13.04
ask peer to play	1.25	.56	-40.44
ignore peer	6.53	1.07	+19.17
boss/push around	6.12	1.33	+17.67
tease other child	6.39	.80	+23.20
exclude peer	6.21	.99	+17.84
be mean to another child	6.33	.87	+43.15
physically hurt peer	6.64	.90	+24.44

**Note** Higher (positive) t-values indicate inferences of greater disliking, lower (negative) t-values signify inferences of greater liking.

All t-values listed above were significant at  $p < .001$

For behaviors other than "mean" and "nice" sample size varied from 61 to 69 depending on the form in which that vignette appeared. N for "mean" and "nice" was 263.

the teacher placing two students in the same work group. While it was difficult to ensure complete neutrality in such incidents in terms of the level of liking or disliking conveyed, the average inference of liking for neutral incidents across all vignettes within any form varied from 3.47 to 3.66 with within-group standard deviations ranging from .47 to .61. This suggests that children tended to assume a small amount of liking between peers unless faced with contrary evidence. In light of this finding, the question arose as to whether the mean inference-of-liking made by any group of children in response to a given key behavior was significantly different from the average mean inference rating that these same children made in response to all neutral incidents they evaluated. When these comparisons were carried out, each positive behavior of interest led to a significantly more positive mean inference of liking at  $p < .001$ . Similarly, each negative behavior also led to a significantly more negative mean inference of disliking when compared to these same adjusted neutral points, again at  $p < .001$ . Furthermore, when individual inferences of liking or disliking associated with specific negative and positive behaviors were directly compared to the mean inference associated with the neutral incident within that same vignette, all of these comparisons generated  $t$ -values that were also significant at  $p < .001$ .

#### Differences in Inferences of Liking Associated with Various Behaviors and Their Opposites

In order to conduct this analysis, difference scores were calculated for each vignette by subtracting the inference-of-liking rating any child made in response to the opposite behavior in that vignette from the rating this same child made in response to the behavior that this vignette was designed to evaluate. These difference scores were then summed across all children completing that vignette and divided by the number of children involved.  $T$ -tests were then conducted for each vignette to determine whether the mean difference score for that vignette was significantly different from zero. These mean difference scores, standard deviations in difference scores used to calculate these means and the

Table 2.2

Mean Difference Between Inferences-of-Liking Ratings For Each Key Behavior  
and Similar Inferences Associated With the Opposite Behavior

Key behavior	Mean difference between scores for key behavior and inferences based on opposite incidents	Standard deviation in difference scores	T-value for test of difference between inference scores for behavior of interest and their opposites
lend something	-4.56	1.70	-20.96
share snack with classmate	-4.56	1.34	-26.65
invite peer over	-4.13	1.80	-19.08
share something personal	-3.90	2.45	-13.01
pick for team/partner	-2.81	1.73	-13.47
hang around with peer	-3.28	1.72	-15.56
help with school work	-4.55	1.79	-20.63
stick up for another child	-4.66	1.73	-22.06
joke with peer	-3.88	2.21	-14.36
help when hurt/sad	-4.68	1.06	-35.93
sit/stand beside	-4.36	1.73	-19.66
talk with classmate	-4.12	1.58	-21.14
be nice to another child	-4.83	1.28	-60.94
phone peer	-2.51	1.89	-10.88
smile at another child	-3.94	2.53	-12.65
ask peer to play	-4.05	1.72	-19.27
ignore peer	+4.78	2.13	+18.24
boss/push around	+4.59	1.67	+22.44
tease other child	+4.72	1.54	+23.95
exclude peer	+4.78	1.39	+26.86
be mean to another child	+4.83	1.28	+60.94
physically hurt peer	+5.07	1.35	+31.12

**Note** Higher (positive) mean difference scores indicate inferences of greater disliking for the key behavior in that vignette compared to the opposite behavior. Lower (negative) mean difference scores signify inferences of greater liking for this key behavior.

All T-values listed above were significant at  $p < .001$

For behaviors other than "mean" and "nice" sample size varied from 61 to 69 depending on the form in which that vignette appeared. N for "mean" and "nice" was 263.

t-values resulting from these comparisons are listed in Table 2.2.

Considering each vignette separately, mean differences between inferences associated with any key behavior and similar inference scores for opposite incidents ranged in absolute value from a low of 2.51 for "phoning" a peer to a high of 5.07 for "physically hurting" another child. When these mean difference scores were tested for each vignette individually using a per-comparison alpha of .05/22 or .002 in order to maintain the family-wise alpha at .05, every comparison yielded results that were significant at  $p < .001$ . Thus, not only did each of these 22 behaviors lead to mean inferences of liking that were significantly different from the neutral point on this scale (see previous sections), these inferences were also significantly different from those drawn on the basis of opposite behaviors within the same vignette. Furthermore, mean difference scores were fairly large in magnitude with the average absolute difference score across all vignettes being 4.29 ( $sd = 1.83$ ). Given the fact that the maximum difference possible for inferences on this scale was |6|, these results would appear to indicate that the inferences drawn by children on the basis of any key behavior were very different from those associated with opposite incidents.

### Order Effects

Although four different vignettes shared the same ordinal position, each behavior was embedded in only one vignette whose ordinal position in the presentation sequence did not vary. Thus, the order of presentation for any vignette and the behavior whose communicative potential was being appraised were partially confounded. In order to assess the degree to which previously presented results may have been influenced by order of presentation it was necessary to pool inference-of-liking ratings across all 4 vignettes sharing the same position in the presentation sequence. In doing so, inferences associated with positive behaviors were considered separately from those made in response to negative incidents. For positive behaviors, the mean inference of liking associated with

any position in the presentation sequence ranged from 1.35 to 1.68 with within-group standard deviations ranging from .71 to 1.08. When these between-group differences were compared through a six-group one-way ANOVA, the resultant  $F$  of 4.81 (5,1569) was significant at  $p < .001$  indicating the presence of an order effect. However, the epsilon value for this analysis was only .01. This statistic ( $\text{epsilon} = df_b(F-1)/((df_b)(F) + df_w)$ ) can range in value from '0' to '1' with stronger relationships between the independent and dependent variables in any ANOVA generating values nearer to '1' (Welkowitz et al, 1982, p. 252). Thus, this epsilon value of .01 indicates that the actual strength of the relationship between order of presentation and inferences of liking was fairly small and may have attained statistical significance primarily because of the large degrees of freedom involved. For contrast purposes the  $t$ -values associated with each of the 16 key positive behaviors in comparison to other neutral events were converted into point-biserial coefficients ( $r_{pb} = ((t^2)/(t^2 + df))^{-1/2}$ ). This coefficient, when squared, assesses strength of effect in  $t$ -tests comparing two groups of scores (Welkowitz et al, 1982, p. 210). As with epsilon, the square of the point-biserial coefficient can vary in value from 0 to 1 with higher values indicating a stronger relationship between the dependent and independent variables. For these comparisons, the resultant  $r_{pb}^2$  values ranged from .72 for "smiling at another peer" to .96 for "asking another child to play", indicating that the main effect for each positive behavior on mean inferences of liking was considerably greater than any effects of order.

A similar analytical strategy was used to evaluate order effects involving inferences of disliking based on negative behaviors. First, the mean inference of disliking was calculated for all negative behaviors embedded in vignettes sharing the same ordinal position in the presentation sequence. For the six possible positions, these mean values ranged from 5.37 to 6.39 with within-group standard-deviations ranging from .87 to 1.47. When these between-group differences were compared in a six-group one-way ANOVA, the resultant  $F$  was 15.33 (5, 1568)  $p < .001$  again indicating that order of presentation had

an effect on the inferences children made in this task. However, the strength of this order effect as measured by epsilon was only .04 indicating a small relationship between order of presentation and inferences of disliking associated with any negative behavior. When the strength of the effect of each individual negative behavior was considered separately, the resultant indices ( $r_{pb}^2$ ) ranged from .69 for "bossing around a peer" to .90 for "physically hurting another child". Thus, while order of presentation appears to have had some impact on the inference of disliking associated with any negative behavior, this effect was considerably smaller than the overall impact that each negative behavior had on children's inference-of-liking ratings. As was suggested for positive behaviors, the significance of this main effect for order of presentation for negative behaviors may have been largely attributable to the large degrees of freedom for the within-groups error term in this analysis.

Differences in the Strength and Variability of Inferences Regarding Level of Liking Associated with Positive and Negative Behaviors

In Study 1, 16 of the 22 most frequently mentioned behaviors in children's explanations of why they felt various classmates liked or disliked them involved positive transactions. In addition, these same children generally reported that they would draw more extreme inferences regarding how much a hypothetical peer (dis)liked them if this peer had directed various positive behaviors toward them than they would if a negative behavior had been involved. Both of these results suggest the possibility of systematic differences between positive and negative social transactions in terms of their potential to communicate level of liking and/or disliking between children. In order to further explore this possibility, several comparisons were made between these two types of behaviors on the basis of data collected in this study.

The first analysis considered differences in the strength of inferences children

made in response to positive versus negative behaviors. Here strength of inference was operationalized in terms of the absolute size of the difference between any inference-of-liking rating and the neutral point on this rating scale ('4'). As a result, for example, ratings of '7' or '1' would both be assigned the same absolute strength-of-inference score of '3'. Use of such absolute values was necessary because ratings at either end of this scale would indicate equally extreme inferences. Once these strength-of-inference scores had been calculated for all inferences each child made, mean strength of inference scores were calculated for all positive and all negative behaviors assessed in these vignettes. For positive behaviors, the resultant mean was 2.57 ( $sd = .66$ ) indicating that the average inference made by children in response to any positive behavior was 2.57 units away from the neutral point on the inference-of-liking scale (in the direction of a positive inference of liking). For negative behaviors, the average distance away from the neutral point was 2.06 ( $sd = .94$ ) indicating that, on average, such negative behaviors led to less extreme inferences than those associated with positive behaviors. When the difference between strength of inference scores associated with positive versus negative behaviors in each vignette was assessed using a repeated measures  $t$ -test, this difference in strength of inference associated with both types of behavior across all vignettes was significant with  $t(1573) = 19.28, p < .001$ .

Variability in the inferences made in response to both positive and negative behaviors were also compared. In this case, these comparisons were conducted separately for each vignette using a standard  $F$ -test for homogeneity of variance. Thus, the variability in inferences of liking associated with the positive behavior in a given vignette was compared with the variability in inferences of (dis)liking children made in response to the negative (opposite) behavior in that same vignette. These results are presented in Table 2.3.

In 18 of 21 vignettes, the negative incident produced greater variability in chil-

Table 2.3

Differences in Variability of Inferences Based on  
Positive and Negative Versions of any Behavior

Item providing base for vignette	Standard deviation in inferences for positive incident	Standard deviation in inferences for negative incident	F-value for test of homogeneity of variance
lend something	.87	1.01	1.16
share snack with classmate	.60	1.13	4.98 ***
invite peer over	.72	1.41	3.68 ***
share something personal	1.28	1.49	1.26
ignore peer	1.27	1.07	1.40
pick child for team/partner	.96	1.29	1.80 *
hang around with peer	1.07	1.53	2.10 **
help with school work	.81	1.37	2.87 ***
stick up for another child	.82	1.19	1.49
joke with peer	1.05	1.57	2.24 ***
help when hurt/sad	.58	.89	1.27
boss/push around	.84	1.33	1.84 *
tease another child	1.01	.80	1.13
sit/stand beside	.98	1.18	1.43
exclude peer	.67	.99	1.74 *
talk with classmate	.71	1.29	3.35 ***
being mean - nice	.74	.87	1.40 **
phone peer	.91	1.46	2.31 ***
smile at another child	1.39	1.58	1.29
ask peer to play	.56	1.56	2.82 ***
physically hurt peer	.90	.89	1.02

Note positive and negative incidents taken from same vignette

For all behaviors other than "mean" and "nice" sample size varied from 61 to 69 depending on the form in which that vignette appeared. N for "mean" and "nice" was 263.

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

dren's judgments regarding the state of the relationship between the two characters involved than did the positive incident occurring in the same vignette. In 12 of these 18 vignettes, this difference between the two within-group variabilities was significant. In the three vignettes in which the positive behavior led to a greater variability in inferences, the resultant  $F$ -value was not significant.

#### Comparison Between Frequency of Spontaneous Mention (Study 1) and Strength of Inference Regarding Liking (Study 2)

The analyses to be presented in the following section compare the relative communicative potency of each of these 22 behaviors across Studies 1 and 2. The index used to determine potency for Study 1 was the proportion of children who spontaneously mentioned a given behavior in explaining their own impressions regarding how much different classmates liked them. The comparable index for Study 2 was the absolute difference in the mean inference-of-liking rating associated with any behavior and the neutral point on the hypothetical inference-of-liking scale. Absolute value in the difference from this neutral point was chosen instead of the  $T$ -values associated with this difference because these latter values could be affected by sample size which varied with behavior. Both the proportion of children spontaneously mentioning any behavior and the absolute strength of mean inferences based on each behavior are listed in Table 2.4.

In order to determine the degree of relationship between these two indices a Spearman rank order correlation coefficient was calculated between these two variables for this set of behaviors. The resultant coefficient was  $r_s(22) = .64$ ,  $p < .001$ . This coefficient indicates a significant moderate relationship between these two variables suggesting a reasonable level of consistency across these two studies in terms of the relative communicative strength of each behavior at least as measured by these two indices.

Table 2.4

Frequency of Spontaneous Mention (Study 1) and Absolute Difference between Mean Inferences of Liking and the Neutral Point for this Scale (Study 2) for Different Behaviors

Behavior of interest	Proportion of children mentioning	Rank	Absolute difference between mean inference and neutral point (4)	Rank
* ask peer to play	.92	1.0	2.75	2.0
be nice to another child	.78	2.0	2.49	11.0
talk with classmate	.65	3.0	2.68	3.5
ignore peer	.60	4.0	2.53	8.5
share snack with classmate	.55	5.0	2.67	5.0
tease peer	.46	6.0	2.39	16.0
* invite peer over	.45	7.0	2.68	3.5
hang around with peer	.40	8.0	2.53	8.5
help with school work	.39	9.0	2.45	15.0
* joke with peer	.35	10.5	2.54	7.5
* help when hurt/sad	.35	10.5	2.78	1.0
stick up for another child	.29	12.5	2.48	12.5
boss/push around	.29	12.5	2.12	22.0
share something personal	.28	14.5	2.48	12.5
* physically hurt peer	.28	14.5	2.64	6.0
lend something	.26	16.0	2.51	10.0
be mean to another child	.25	17.0	2.33	18.0
* exclude peer	.23	18.0	2.21	21.0
phone peer	.17	21.5	2.27	19.0
* sit/stand beside	.20	20.0	2.36	17.0
* pick child for team/partner	.17	21.5	2.46	14.0
smile at another child	.22	19.0	2.23	20.0

**Note** \* on items representing the combination of more than one response category (See Study 1), frequency listed is for behavior/category mentioned most often. Lower rank values for each index indicate greater communicative potency

### Summary and Conclusions

This study cross-validated the potential of 22 behaviors to convey liking or disliking between children. In order to do so, each of these behaviors as well as its opposite and a relatively neutral incident were placed in a single vignette. Inferences regarding level of liking made by children in response to the various behaviors embedded in any vignette were then compared. For each of the 22 behaviors which this study was designed to evaluate, the inferences associated with that behavior were significantly different from a) the neutral point on these hypothetical inferences-of-liking scales, b) inferences drawn on the basis of (neutral) events not expected to convey much information regarding liking and, c) inferences associated with opposite behaviors. Collectively, these results would seem to indicate that these behaviors can function as important communicators of level of liking. Neither the gender of children completing these vignettes nor the type of vignette (single or three-agent) used to present any behavior had any significant effect on this pattern of results. Order of presentation of different vignettes, however, did have a small but significant impact on the inferences of liking associated with any behavior. Thus, future investigations into the communicative potential of specific behaviors, if using a similar vignette task, should include counter-balancing of order of presentation as a design feature. At the same time, these order effects were considerably smaller than the effect any specific behavior had on children's inferences regarding level of liking, and thus were unlikely to have appreciably altered the overall pattern of results as summarized above. This is particularly true for analyses of differences between inferences based on any given behavior and those associated with opposite behaviors since they occurred in the same vignette and, thus, shared the same position in the presentation sequence.

Besides confirming that each of these 22 behaviors could influence children's impressions regarding another child's level of liking, the relative strength of each of these behaviors as a communicator of liking was also considered. In this analysis, two indices

of communicative potency were compared. The first involved the frequency with which various behaviors were spontaneously mentioned by children in Study 1 in their explanations of their impressions regarding how much actual classmates liked them. The second index was based on the strength of inference children drew for each behavior on the basis of the hypothetical vignettes used in this study. A comparison of rank orderings for these 22 behaviors on both of these variables revealed a moderate relationship across these two studies in terms of the relative communicative strength of each behavior suggesting a degree of generalizability or robustness to these findings. However, in the present study the experimental manipulation of various behaviors in order to influence children's impressions was carried out in a hypothetical context. Thus, while the results of this study suggest that these behaviors do have the potential to convey such information, these results probably should not be considered conclusive evidence that these behaviors actually do influence, in an ongoing fashion, children's perceptions within their peer groups regarding level of liking. Nor has it yet been demonstrated that such behavioral communication of liking and/or interest can stimulate the development of reciprocal feelings from children receiving this initial communication. Rather, this study confirms the potential of each of these behaviors to convey liking and, as such, represents a further step in validating the inclusion of such behaviors on a measure designed to assess such behavioral communication.

Finally, differences between the ability of positive and negative social behaviors to affect children's impressions of peers' social inclinations were also considered. Generally, positive behaviors led to significantly more extreme inferences of liking than did negative behaviors in terms of level of liking: a pattern which was also present in Study 1. In addition, in over half the vignettes there was significantly greater variability in the inferences associated with negative behaviors than there was in inferences made in response to related positive behaviors. These results may indicate that children more

readily interpret positive overtures as reflecting an attitude of liking and interest while perhaps tempering or qualifying judgments regarding the significance of negative incidents on the basis of other contextual/relationship factors. Such an interpretation, if valid, could have interesting implications in terms of the expected impact of various types of behaviors on the friendship formation and maintenance process and will be considered further in the light of the results of studies to be presented later in this dissertation.

## CHAPTER TEN

### Study 3

#### Evaluation of the Psychometric Properties of the Behavioral Communicators of Liking Scale

##### Purpose

This study was designed to evaluate the Behavioral Communicators of Liking Scale. This measure contained a set of items based on behaviors tentatively identified in Study 1, and cross-validated in Study 2, as consistent behavioral communicators of liking for children aged 10 and 11. Psychometric properties considered included factor structure, internal consistency and test-retest reliability. In addition, the construct validity of this scale was assessed by comparing scores on this measure with several other variables. Since only behaviors likely to play an important role in conveying liking were included on this measure, it was expected that the frequency with which any child directed these behaviors toward another classmate would be highly correlated with this latter classmate's impression of how much the first child liked him or her. Also, as hypothesized earlier (See Chapter 3) this communication of liking was expected to generate a reciprocal response of liking from other children. Accordingly, the ratings that children received from peers on this Behavioral Communicators of Liking Scale were also expected to be highly correlated with the level of liking reported by peers for these same children.

##### Method

##### Subjects

Two hundred and sixty students none of whom had been involved in either Study 1 or 2 were recruited from 12 Grade-5 classes in 6 different schools to participate in

this study. The population served by these schools was primarily anglophone but included some children of francophone and European background. All six schools were situated in middle socio-economic areas. Only students receiving parental permission were included in this study. The resultant sample consisted of 147 boys (mean age, 10.6 years) and 113 girls (mean age, 10.5 years). Of these, 255 were available for the first retest 3 months after the initial pre-test and 252 for a final testing session conducted another 3 months later. All data collection was carried out within a single school year. Only those children who remained in the same class for the entire data collection period were tested at Times 2 and 3.

### Measures

Four measures were administered at each test time. These were a Sociometric Rating Scale, the Behavioral Communicators of Liking Scale, a Peers' Impressions of Liking Scale and the Revised Minnesota Class Play. These measures are described below and reproduced in Appendix C.

Sociometric Rating Scale. This instrument served as the primary measure of how much each child liked to be with various other classmates. On this seven-point scale, ratings of '1' indicated that the rater "always liked to be with the other child", a '4' that the rater like to be with this child "half the time" and a '7' that the rater "never liked to be with" that classmate. Rating scale points '2', '3', '5', and '6' further subdivided this preference or liking continuum. A rating scale was chosen over the sociometric nomination method (see Chapter 5 for a more complete review) because previous research indicated that the rating-scale measure generates more reliable data (e.g., Asher & Hymel, 1981; Kennedy, 1988) as well as provides more information regarding the level of liking occurring within each relationship (Bukowski & Hoza, 1989; Murphy, 1986a,1986b; Newcomb &

Bukowski, 1983). This latter feature is particularly important if one wishes to examine changes in particular relationships as opposed to changes in overall peer-group status.

The Behavioral Communicators of Liking Scale. This measure contained 22 items each based on a behavior previously identified as a potentially important conveyors of liking or disliking between children in this age group (see Studies 1 and 2). For each item, children were asked to rate how often every other classmate had directed that behavior toward them in the last month. This relatively short time-frame was incorporated into this scale both in order to enhance accuracy of reporting as well as to make the measure more sensitive to any treatment effects generated in Study 4. Ratings were made on a three-point scale with a '1' indicating that the rated peer had never directed this behavior toward the rater in the last month, a '2' that this behavior had occurred once or twice, and a '3' that the rated peer had directed this behavior toward the rating child more than two times during this same time period.

For positive behavior items resultant scores were entered into the computer unchanged. As a result, higher scores on such items indicate that the rated child had directed a greater number of that behavior toward the rating child. Scores for negative items were reversed coded (1=3) (2=2) (3=1) when entered into the computer. Thus, in descriptions of data concerning these negative items higher scores will indicate lower frequencies of these behaviors and hence, also a more positive interaction pattern or one which would be more likely to convey liking or disliking at this age.

Peers' Impressions of Liking Scale. On this measure, children were asked to predict the level of liking or preference various other classmates held for them. Accordingly, scores received by each child on this scale were interpreted as a measure of the impression of liking that this child was conveying toward his/her peers. Scale points

and verbal anchors used on this impressions scale were similar to those used on the sociometric rating scale in that a rating of '1' signified an expectation of strong liking and a '7' an impression of strong disliking. It was predicted that scores on this impressions scale should be closely related to scores on the Behavioral Communicators of Liking Scale since the behaviors assessed by this latter scale were believed to convey such interest and liking. Similarly, it was expected the impressions of liking any child conveyed to classmates would be highly correlated with the level of liking reported by classmates for this child on the Sociometric Rating Scale since the model developed for this study (See Chapter 3) hypothesized that such impressions would tend to elicit a reciprocal affective response from peers.

Revised Minnesota Class Play. This peer assessment measure is usually used to assess children's perceptions of classmates' socially relevant traits, attributes and general roles within the peer group rather than relationship-specific interactions. It was included primarily to assess the discriminant validity of the Behavioral Communicators of Liking Scale. The instructions for the Class Play were similar to those used by Masten et al (1985). Each child was asked to nominate one classmate whom they felt best fitted any given descriptor. Instances of non-nomination were given score values of '0', while nominations were scored as '1's.

Masten et al (1985) reported three fairly distinct factors for the Revised Minnesota Class Play. In the present study, data from this measure were subjected to confirmatory factor analyses. Regardless of the gender of participating children, the type of factor rotation or whether raw scores or aggregated data were used, the same three factors emerged as were previously reported. Thus, factor scores were calculated for this measure in the manner suggested by Masten et al. This procedure resulted in three factor scores for each child from each peer: Likability, Isolated-Withdrawn, and Aggressive.

Data collection procedures. For each class, three group testing sessions were conducted each lasting approximately one hour. The initial pre-test session occurred in December prior to the first wave of interventions (See Study 4). The second test session was conducted three months later, after this first intervention was completed. The last session took place at the end of May after the second treatment group of children had completed their intervention program.

During the first one hour session, the purpose of the study was introduced as an investigation into the kinds of things children this age do with their friends. Children were informed that their responses were confidential and that they were to refrain from discussing their responses after the session. Children were also instructed not to look back at their answers on any previously completed page. It was also stressed that there were no right or wrong answers to these questions since what was of interest was their opinions, feelings and impressions. In an effort to encourage careful responding, each item, or set of items, on any page was read aloud by the test administrator to the students who then completed that particular page.

The first measure completed in each session was the Sociometric Rating Scale. Children were instructed to rate every classmate except themselves. Once this measure was completed, the Behavioral Communicators of Liking Scale was presented and the meanings of each anchor explained. Again children were instructed to give each classmate one rating and to not skip anyone but themselves. When the first negatively worded item was encountered, the meanings of the anchors were re-explained. After 16 items on this scale (roughly half-way through the test session), children were asked to place their response booklets upside down on their desks and to take a few minute stretch break. Once this break was finished, testing resumed with the last 6 social interaction items. When this scale was finished, the Peers' Impressions of Liking Scale was introduced and administered. Instructions were similar to those used with the sociometric rating scale

except that it was stressed that, in this case, children were to guess how much every other classmate liked to be with them. Finally, the Class Play was presented and explained. Students were told to circle the name of one classmate other than themselves whom they felt best fit any given descriptor.

## Results

### Structure of the Behavioral Communicators of Liking Scale

Factor structure and internal consistency of this scale were assessed using data collected in the first test session. Since none of the relationships which formed the basis of these data had been affected by any intervention (Study 4), data pertaining to all children were used in these analyses. Only data involving same-sex peer relationships were used. Since there was no conceptual or empirical reason for expecting orthogonal or unrelated factors, oblique factor solutions were used as the principal basis for evaluating factor structure with varimax rotations considered only for comparison purposes. In addition behavioral ratings received by boys and girls on this behavioral communication scale from same-sex peers were also factor analyzed separately in order to ensure that any emergent factor structure did not depend on the gender of the rater.

Finally the effect of using aggregated, mean scores versus unaggregated or raw scores was also considered. Factor analyses of unaggregated raw scores considered separately all individual ratings received by any child from each of his/her same-sex classmates. In subsequent discussion of results, such raw scores will be referred to as relationship-specific data since the scores being considered are those any given child received from single classmates.

In addition, the mean score any child received from all same-sex classmates on

these items were also factor analyzed. These mean scores were calculated by summing the ratings any child received on a given item from all same-sex classmates and then dividing by the number of classmates involved. Thus these mean scores represented the average rating for any child across all same-sex classmates. For this reason, resultant scores will be referred to as group-level data.

Factor structure of behavioral ratings girls received from specific same-sex classmates. These analyses involved ratings received by girls from individual same-sex classmates on the Behavioral Communicators of Liking Scale. When no restrictions were placed on the number of factors to be generated other than that the eigen value of any factor be greater than 1.0, the same 3-factors emerged regardless of which rotation was requested. The first factor contained all positive behaviors except 'smiling at', 'being nice to ' and 'talking with' the rating child. In the varimax rotation, this factor accounted for 41% of the variance in relationship-specific behavioral ratings. The second factor involved all of the 6 negative behaviors except 'ignores', which fell on the third factor along with the 3 previously mentioned positive behaviors. The negative factor accounted for 12% of the variance in relationship specific behavioral ratings in the varimax solution. The smaller, third factor, accounted for 5% of this variance.

Given the small percentage of variance accounted for by this third factor as well as its low eigen value (1.08), it was decided to examine whether this third small 'positive' factor represented an important, distinct and reliable cluster of items. Several issues were considered in addressing this question. First, many of the items on the two positive factors had cross-loadings greater than .30. Second, when a 2-factor solution was forced, the result was a single positive factor and another containing all negative behaviors. Third, in this 2-factor solution there were only 2 cross-loadings greater than .30. In addition, the positive factor in this 2-factor solution had higher internal consistency, test-retest

reliability and predictive validity than either of the two smaller positive factors in the 3-factor solution. Furthermore, the 2-factor solution accounted for almost as much variance in interaction ratings (53%) as did the 3-factor solution (58%). Finally, as will be discussed in the following section, when group-level or aggregated data were factor analyzed without placing restrictions on the number of factors to be extracted, the result was a 2-factor solution very similar to the one described here. For all these reasons, it was decided to use the 2-factor solution to describe the structure of relationship-specific ratings girls received on the behavioral communication scale. This oblique factor structure is presented in Table 3.1. though the varimax rotation generated the identical structure with the exact same hierarchy of items within each factor.

This factor solution results in an almost complete division between positive and negative social interactions. The correlation between these two factors in the oblique rotation was .20 indicating that the two factors shared only 4% of their respective variances. Two items, "was nice to you" and "ignore you", had relatively low and roughly equivalent loadings onto both negative and positive factors suggesting that neither item fit well the structure presented by the other 20 items. After deleting these two items, the internal consistency or Cronbach's coefficient alpha (Cronbach, 1951) was .94 for the positive factor and .72 for the negative factor.

Factor structure of mean behavioral ratings for girls. The analyses to be reported in this section are based on the mean behavioral ratings each girl received from all same-sex classmates. Both oblique and varimax factor solutions yielded similar 2-factor structures when the only restriction placed on the number of factors generated was that the eigen value of each factor had to be greater than 1.0. In both cases, a large factor containing all positive items emerged. Two of these positive behaviors ('nice' and 'smiles') also cross-loaded strongly onto the second factor which appeared to be defined primarily

Table 3.1

Oblique Factor Solution For Ratings Girls Received From Specific  
Same-sex Classmates on the Behavioral Communicators of Liking Scale

Behavior item	Factor 1	Factor 2
share secret with you	.83	
joke around with you	.82	
hang around with you	.81	
stand/sit beside you	.80	
stick-up for you	.80	
ask to play with you	.79	
help you when you were sad	.77	
phone you	.77	
help you with school work	.74	
pick you for partner/team	.73	
invite you to their house	.73	
share snack or toy with you	.71	
talk with you	.67	
lend you something	.67	
smile at you	.55	
tease you		.77
was mean to you		.75
boss you around		.75
physically hurt you		.57
exclude you		.50
ignore you	.32	.44
was nice to you	.41	.43

Note Loadings less than .50 not listed

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high scores on both negative and positive items signify patterns of behavior more likely to communicate liking.

by negative behaviors. Similarly, the negative item, 'ignores', also cross-loaded onto both factors. In the varimax rotation these two factors accounted for 50% and 17% of the variance in mean behavioral communication scores respectively. In the oblique factor solution the correlation between these two factors was .27 indicating, as was the case with relationship-specific data, that these two factors were fairly independent. This oblique factor solution is reproduced in Table 3.2.

These two factors were very similar to those which emerged using relationship-specific data. Again the items 'nice', and 'ignore' loaded onto both factors suggesting that these items might not as readily fit the otherwise clear division between positive and negative behaviors on this scale. When these two items were deleted from their respective factors and the internal consistency of remaining items examined, coefficient alpha for the positive factor was .96. This coefficient was not enhanced by excluding 'smiles' which was tentatively retained since on factor analyses of similar ratings received by boys this item loaded strongly onto the positive factor (See next section) and consistency in factor scores to be used in later analyses was considered desirable. For the negative factor, coefficient alpha was .88 when all 5 remaining negative behaviors were considered. Both of these alphas indicate a high degree of internal consistency or homogeneity amongst items within each factor.

Factor structure of behavioral ratings boys received from specific same-sex classmates. As was the case with relationship-specific data for girls, an initial factor analysis of these unaggregated data resulted in three factors: one large positive factor containing all positive behaviors except 3. In this case, however, these three behaviors were "invite you to their house", "phone you" and "share a secret with you" which together appeared to define a smaller positive factor. In the oblique solution, this smaller positive factor was highly inter-correlated with the larger positive factor ( $r_{xy} = .46$ ). Furthermore, items on

Table 3.2

Oblique Factor Solution For Mean Ratings Girls Received From  
Same-Sex Peers on the Behavioral Communicators of Liking Scale

Behavior item	Factor 1	Factor 2
hang around with you	.93	
share secret with you	.90	
stand/sit beside you	.89	
joke around with you	.89	
ask to play with you	.87	
stick-up for you	.85	
help you when you were sad	.83	
phone you	.79	
help you with school work;	.79	
talk with you	.79	
invite you to their house	.77	
share snack or toy with you	.74	
pick you for partner/team	.73	
lend you something	.68	
ignore you	.55	.44
smile at you	.51	.46
was mean to you		.90
tease you		.90
boss you around		.88
physically hurt you		.72
exclude you		.68
was nice to you	.43	.57

Note Loadings less than .30 not listed

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high mean scores on both negative and positive items signify patterns of behavior more likely to communicate liking.

these two positive factors were highly cross-loaded in the varimax solution. This, the low eigen value (1.04) and the small variance in interaction ratings accounted for by this smaller positive factor prompted a second set of factor analyses in which a 2-factor solution was forced. As was the case similar ratings for girls, the single positive factor which emerged in this two-factor solution proved to have greater internal consistency, retest reliability and predictive validity than either of the two smaller positive factors. The oblique rotation of this 2-factor solution is reproduced below in Table 3.3 though the varimax rotation produced an identical structural pattern.

As was the case in previous factor analyses of behavioral ratings received by girls, a relatively clear division between positive and negative behaviors emerged in this 2-factor solution. In the varimax rotation, the positive factor accounted for 42% of the variance in unaggregated ratings on the Behavioral Communicators of Liking Scale. The negative factor, in turn, accounted for 12% of this variance. The correlation between these two factors was only .24, indicating a fairly high degree of independence between positive and negative behavioral communication scores. However, as was the case with similar data for girls, the positive item 'nice' and the negative item 'ignores' cross-loaded onto both factors, reinforcing the impression that these two items may not fit this positive/negative pattern as closely as other items. After tentatively deleting these two items, internal consistency or Cronbach's coefficient alpha for the positive factor was .94 and .77 for the negative factor. For both factors, the elimination of any other single item did not increase this coefficient. Thus, as was the case with relationship-specific ratings for girls on this scale, the positive factor was very homogeneous and the negative factor moderately homogeneous.

Table 3.3

Oblique Factor Solution For Ratings Boys Received From Specific  
Same-sex Classmates on the Behavioral Communicators of Liking Scale

Behavior item	Factor 1	Factor 2
hang around with you	.81	
help you when you were sad	.81	
joke around with you	.80	
stand/sit beside you	.79	
ask to play with you	.78	
share secret with you	.78	
stick-up for you	.76	
share snack or toy with you	.75	
pick you for partner/team	.72	
lend you something	.71	
phone you	.69	
help you with school work;	.68	
talk with you	.68	
invite you to their house	.68	
smile at you	.65	
was nice to you	.49	.43
tease you		.80
was mean to you		.77
boss you around		.76
exclude you		.61
physically hurt you		.57
ignore you	.31	.42

Note Loadings less than .30 not listed

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high scores on both negative and positive items signify patterns of behavior more likely to communicate interest and liking.

Factor structure of mean behavioral ratings for boys. The analyses to be reported in this section were based on the mean behavioral ratings boys received from all same-sex classmates. As was the case for girls, two factors emerged, one containing all positive items and the other comprised of all negative behaviors. In the varimax solution these factors accounted for 47% and 19% of the variance in mean social interaction scores, respectively. In addition, the same 3 items ('nice', 'smiles' and 'ignores') had cross-loadings greater than .30, with the factor loadings of 'nice' and 'ignores' being fairly similar across the two factors. Results of this oblique factor solution are summarized in Table 3.4.

Because 'nice' and 'ignores' consistently failed to load onto any one factor in this as well as in previous factor analyses, these two items were again tentatively deleted from their respective factors. When the internal consistency of the remaining items on each factor was considered, the resultant coefficient alphas were .96 for the positive factor and .87 for the negative factor. Thus, as was the case with mean social interaction scores for girls, the internal consistency of these two factors was higher, especially for the negative factor, when aggregated or group-level mean interaction scores were used instead of relationship-specific or unaggregated interaction ratings.

#### Test-Retest Stability of the Behavioral Communicators of Liking Scale

The test-retest stability of scores on the Behavioral Communicators of Liking Scale was calculated using only a subset of the data available at Time 2. Specifically, only data pertaining to those children not involved any social skills training between Times 1 and 2 (see Study 4) were used since the children involved in that intervention were expected to change the frequencies with which they directed these behaviors toward peers. Thus, the retest sample used in the following analyses consisted of 243 children.

Table 3.4

Oblique Factor Solution For Mean Ratings Boys Received From  
Same-Sex Peers on the Behavioral Communicators of Liking Scale

Behavior item	Factor 1	Factor 2
help you when you were sad	.90	
hang around with you	.86	
joke around with you	.86	
ask to play with you	.86	
stick-up for you	.85	
stand/sit beside you	.84	
pick you for partner/team	.82	
share secret with you	.81	
share snack or toy with you	.79	
talk with you	.78	
lend you something	.78	
smile at you	.75	.32
help you with school work;	.75	
invite you to their house	.71	
phone you	.65	
was nice to you	.59	.51
was mean to you		.87
boss you around		.84
tease you		.83
exclude you		.73
physically hurt you		.70
ignore you	.33	.56

Note Loadings less than .30 not listed

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high scores on both negative and positive items signify patterns of behavior more likely to communicate liking.

In assessing the test-retest reliability of the ratings children received on this behavioral scale, it was necessary to consider what might represent an acceptable level of stability over this time period. When a trait or a construct is expected to be fairly stable over time, it is probably reasonable to attribute instability in scores on the related instrument to measurement error or unreliability. However, when there are grounds for expecting change over time in the construct of interest such instability may not necessarily represent measurement error (Brown, 1983, p. 77; Kaplan & Saccuzzo, 1989, p.94). Since childrens' peer relations are not perfectly stable even over short time periods (Newcomb & Bukowski, 1983; 1984) and since social interaction patterns may well vary as friendship patterns change, it became necessary to take this fact into consideration in assessing the test-retest reliability of scores on this behavioral communication scale.

For this reason, it was decided to use the stability of sociometric ratings, peers' impressions of liking and Class Play factor scores as a comparative baseline for scores on the Behavioral Communicators of Liking Scale. In order to do so, children's scores on each of these variables at Time 1 were correlated with similar scores received 3 months later at Time 2. The results of these analyses are summarized in Table 3.5. Here, test-retest correlations are presented separately for both girls and boys as well as for all children regardless of gender. In all cases, however, only scores from same-sex classmates were entered into the respective analyses. In addition, both the test-retest correlation for unaggregated (relationship-specific) and aggregated (group-level) mean scores are presented.

Examining the test-retest reliability coefficients listed in Table 3.5, regardless of which grouping of subjects were considered or whether relationship-specific (unaggregated) or group level (aggregated) mean scores were used, the positive factor on the Behavioral Communicators of Liking Scale was generally more stable than sociometric ratings, peer impressions of liking and Class Play Likability scores. This latter score represents the

Table 3.5  
Three-Month Test-Retest Correlations<sup>a</sup>  
For All Measures Used in Study 3

Variable	All Children		Males only		Females only	
	unagg	agg	unagg	agg	unagg	agg
N <sup>b</sup>	(2361)	(243)	(1466)	(136)	(895)	(107)
sociometric ratings	.56	.74	.55	.71	.55	.76
peer impressions	.55	.65	.54	.58	.56	.67
positive interactions <sup>c</sup>	.72	.81	.73	.79	.68	.77
negative interactions <sup>d</sup>	.45	.69	.44	.66	.45	.70
Likability (CP)	.52	.76	.48	.72	.58	.79
Aggressive (CP)	.51	.85	.53	.89	.39	.63
Isolated (CP)	.41	.81	.42	.85	.39	.77

**Note** N = number of relationships (unaggregated) or children (aggregated)

CP = Class Play factors

- a all correlations significant at  $p < .01$
- b on some variables, N slightly less due to missing data
- c positive interaction factor score minus 'nice'
- d negative interaction factor score minus 'ignore'

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high scores on both negative and positive items signify patterns of behavior more likely to communicate liking.

factor on the Class Play that is probably most comparable to the positive factor on the Behavioral Communicators of Liking Scale as both tap positive aspects of each child's social demeanor. Considering these various test-retest stability coefficients, it would appear that the positive behavioral communication factor possesses fairly good test-retest reliability. When the retest reliability of the smaller two positive factors, which emerged in initial factor analyses of unaggregated social interaction scores were considered (data not presented in Table 3.5), the resultant stability coefficients were consistently less than the coefficients for this larger positive factor.

When the test-retest reliability of the negative factor on the Behavioral Communicators of Liking Scale was considered, the resultant stability coefficients were consistently slightly lower than those for sociometric rating scores or and the positive behavioral communication factor. At the same time, the stability coefficients for negative interaction scores were fairly similar in magnitude to those for the Class Play Aggressive factor. This latter factor represents the factor on the Class Play that appears to be most similar conceptually to the negative interaction factor on the Behavioral Communicators of Liking Scale since both assess more aversive aspects of a child's social demeanor. Thus, though negative behavioral communication factor scores appear to be appreciably less stable than positive scores on this behavioral scale, this may reflect greater volatility in patterns of negative interaction. In any event, the test-retest coefficients of this negative behavioral communication factor were close enough to those of sociometric ratings, peer impressions of liking and the Aggressive Class Play factor to consider the negative factor on the Behavioral Communicators of Liking Scale to be reasonably stable over time.

### Validity of the Behavioral Communicators of Liking Scale

Construct validity. In this analysis a single-method multi-trait matrix was employed to assess the convergent and discriminant validity of the Behavioral Communicators of Liking Scale using an analytical approach adapted from Cambell & Fiske (1959). This matrix compared the correlations between three measures all sharing a the same method: peer report. Two of these measures, the Behavioral Communicators of Liking Scale and the Peers' Impressions of Liking Scale were designed to measure highly related constructs. In contrast, on the Revised Minnesota Class Play peers are asked to nominate classmates whom they felt possessed certain traits, social roles or attributes believed to influence children's status in their peer groups but not necessarily as a result of their communicative potential. Thus, it was expected that the strongest relationship between the scores children received from specific classmates on any of these three measures should be that between scores on the Behavioral Communicators of Liking Scale and the Peers' Impressions of Liking Scale.

The correlations relevant to this analysis are presented in Table 3.6. On this table, the criterion measure is the impressions of liking conveyed by children to their peers as measured on the Peers' Impressions of Liking Scale. Correlations are between this criterion measure and factor scores on both the Class Play and the Behavioral Communicators of Liking Scale. These coefficients were calculated for both male and females separately as well as both gender groups combined using relationship-specific data. In these and subsequent validity analyses, the positive interaction factor score was calculated by summing ratings received on all 16 positive items on the Behavioral Communicators of Liking Scale except 'nice' and dividing by 15. Negative interaction scores were calculated by summing ratings on all negative items on this same scale except 'ignores' and dividing by 5. The inter-correlations which would have occurred if these two items had been included in calculating these respective interaction factor scores have been

Table 3.6

Correlations Between Impressions of Liking Conveyed To Specific Classmates  
and Both Behavioral Communication (BC) and Class Play (CP) Factor  
Scores Received From These Same Peers

Variable	All Children	Males	Females
N <sup>a</sup>	(2743)	(1714)	(1030)
pos. factor (BC) <sup>b</sup>	-.73 (-.74)**	-.73 (-.74)**	-.72 (-.73)**
neg. factor (BC) <sup>c</sup>	-.37 (-.38)**	-.31 (-.37)**	-.29 (-.36)**
Likability (CP)	-.29**	-.29**	-.29**
Aggressive (CP)	.08**	.06*	.09**
Isolated (CP)	.03	.08**	.02

**Note** N = number of relationships as correlations based on unaggregated data.

- \*\* correlations significant at  $p < .01$   
\* correlations significant at  $p < .05$

- a on some variables, N slightly less due to missing data  
b factor score minus 'nice' (with 'nice' in parentheses)  
c factor score minus 'ignore' (with 'ignore' in parentheses)

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high scores on both negative and positive items signify patterns of behavior more likely to communicate liking.

placed in parentheses following the correlations involving that factor.

Examining these correlations, it is evident that as would be predicted if the behavioral communication scale did measure interactions conveying liking, positive interaction scores on this scale were highly correlated with the impressions of liking reported by peers. The correlations between negative factor scores on the Behavioral Communicators of Liking Scale and peers' impressions of liking were substantially lower. However, the correlation between scores on this negative interaction factor and peers' impressions of liking were generally as high as those involving the Class Play Likability factor and higher than the correlations involving the Aggressive and Isolated-Withdrawn factors on the Class Play and this criterion measure.

Predictive validity. This section considers the degree to which the scores children received on the Behavioral Communicators of Liking Scale predicted sociometric ratings of liking these same children received from other classmates. Recalling the model proposed in Chapter 3, it was hypothesized that peers would tend to like those children who they thought liked them. Furthermore, since the interactions assessed by the Behavioral Communicators of Liking Scale were believed to have a strong potential for conveying such interest, it was expected that, when dyadic or relationship-specific data were used, children's scores on the Behavioral Communicators of Liking Scale would be more highly correlated to the sociometric ratings these same children received from specific classmates than would Class Play scores received from these same classmates. On Table 3.7, the criterion measure was the sociometric ratings received by each child. Thus, this table lists the correlations between these sociometric ratings and scores children received all other measures used in this study.

Examining these correlations, several predictions regarding the relationship between sociometric ratings received and the other variables measured in this study appear

Table 3.7  
Correlations<sup>a</sup> Between Sociometric Ratings Received  
From Specific Same-Sex Classmates and Scores on Other Measures

Variable	All Children	Males	Females
N <sup>b</sup>	(2743)	(1714)	(1030)
peer impressions	.68	.69	.66
pos. factor (BC) <sup>c</sup>	-.70 (-.70)	-.69 (-.70)	-.70 (-.71)
neg. factor (BC) <sup>d</sup>	-.29 (-.36)	-.27 (-.35)	-.29 (-.36)
Likability (CP)	-.35	-.33	-.37
Aggressive (CP)	.14	.12	.16
Isolated (CP)	.13	.14	.11

Note N = number of relationships (unaggregated data)  
CP = Class Play  
BC = Behavioral Communication of Liking

- a all correlations significant at  $p < .01$
- b on some variables, N slightly less due to missing data
- c factor score minus 'nice' (with 'nice' in parentheses)
- d factor score minus 'ignore' (with 'ignore' in parentheses)

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high scores on both negative and positive items signify patterns of behavior more likely to communicate liking.

to have been met. First, regardless of gender there was a high correlation between the positive behavioral communication score received by any child and the sociometric ratings given to that child by these same peers. In addition, there was an equally high correlation between impressions of liking conveyed to peers (as measured by the Peers' Impressions Scale) and the sociometric ratings of liking received from these same peers. Both these findings support the possibility that impressions regarding another child's level of liking or interest may influence the level of liking directed back to this other child. Furthermore, the correlations between the positive interaction factor and sociometric ratings were much higher than any correlations involving Class Play factor scores.

The comparison between the negative factor on the behavioral communication scale and various Class Play scores, in terms of their relationships to sociometric ratings, is slightly more complex. The positive Class Play Likability factor was more strongly related to sociometric ratings received than was the negative behavioral communication factor. At the same time, relationship-specific negative behavioral communication scores were more highly related to sociometric ratings received from peers than were respective Class Play Aggressive scores. Interestingly, inclusion of the item 'ignores' on this negative interaction factor increased the average proportion of variability shared between the resultant factor score and sociometric ratings received by 54% ( $(-.36^2 \times 100)$  or .130 versus  $(-.29^2 \times 100)$  or .084. In contrast, inclusion of the item 'nice' on the positive factor had minimal effect on these correlations. Class Play Isolated-Withdrawn scores generally had the weakest relationships with level of liking reported by children for other classmates.

It was also possible to consider the degree to which variance shared between sociometric ratings and either Class Play or Behavioral Communicators of Liking Scale scores could be accounted for by variance in the impressions of liking or interest conveyed to peers by these children. This issue is relevant because, in the model underlying this research (See Chapter 3), the behaviors included on the Behavioral Communicators of

Liking Scale were believed to be important to friendship formation and maintenance because they had the potential to convey interest and liking. Given this model, one would predict that most of the relationship between scores on the Behavioral Communicators of Liking Scale and sociometric ratings received from classmates should be accounted for by the impressions these classmates reported on the Peers' Impressions of Liking Scale. One method of assessing this possibility is to partial out, or statistically control for the effect of these impressions as measured by this peers' impressions scale. Specifically, one would expect the resultant first-order partial correlations between factor scores on the Behavioral Communicators of Liking Scale and sociometric ratings to be low. In contrast, because the traits and attributes included on the Class Play measure were not expected to play a significant role in shaping impressions of whether another child liked you or not, partialing out variations in peers' impressions of liking should have little effect on the strength of the correlations between Class Play factor scores and sociometric ratings received. The data relevant to these predictions are presented in Table 3.8. Again, correlations for boys and girls as well as for all children combined are presented separately. Thus, this table's organization is exactly the same as Table 3.7 except that partial, or first-order correlations between each factor score and sociometric ratings are reported.

Looking at these first order partial correlations reported in Table 3.8 and comparing these with the zero-order correlations (Table 3.7) it appears there was a substantial reduction in the size of the correlation between sociometric ratings and behavioral communication factor scores when variation in peers' impressions were statistically controlled for. One method of quantifying this reduction is to compare the percentage of variability shared between sociometric ratings and social interaction scores with or without the effects of expected ratings being partialled out. For the positive interaction factor, the average percentage of variance shared with sociometric ratings for both gender groups combined based on the zero-order correlations listed on Table 3.7, was  $(.70^2)$  or 49.0%.

Table 3.8

Partial Correlations Between Sociometric Ratings Received From Specific Same-Sex Classmates and Scores Receive From These Same Peers on the Behavioral Communicators of Liking Scale and Class Play

Variable	All Children	Males	Females
N <sup>a</sup>	(2700)	(1687)	(1013)
pos. factor (BC) <sup>b</sup>	-.40 (-.41)**	-.38 (-.39)**	-.43 (-.44)**
neg. factor (BC) <sup>c</sup>	-.11 (-.14)**	-.09 (-.13)**	-.14 (-.17)**
Likability (CP)	-.22**	-.19**	-.26**
Aggressive (CP)	.11**	.11**	.13**
Isolated (CP)	.15**	.13**	.18**

**Note** N = number of relationships (unaggregated data)  
 CP = Class Play  
 BC = Behavioral Communication of Liking

\*\* correlations significant at  $p < .01$ , \* significant at  $p < .05$

a on some variables, N slightly less (missing data)

b factor score minus 'nice' (with 'nice' in parentheses)

c factor score minus 'ignore' (with 'ignore' in parentheses)

Scores on negative behavior items were reverse coded (3=1) (2=2) (1=3). Thus, high scores on both negative and positive items signify patterns of behavior more likely to communicate liking.

When the effects of sociometric impressions were partialled out, the average percentage of variance shared by sociometric ratings and social interaction scores dropped to  $(-.40^2 \times 100)$  or 16.0%. This represents only 32.7%  $((16.0/49.0) \times 100)$  of the original percentage of variability shared by sociometric ratings and positive social interaction scores. What this indicates is that 67.3% of the variability shared between peers' liking of various children and the behaviors (on the BC-Scale) these peers reported children to be directing toward them, could be accounted for by peers' impressions of liking.

Adopting the same analytical approach for negative social interaction scores, the average percentage of variability in negative interaction scores shared with sociometric ratings for boys and girls combined (Table 3.7) was 13.0%.  $((-.36^2 \times 100))$  When sociometric impressions were partialled out, the average percentage of variability shared between negative interaction scores and sociometric ratings fell (Table 3.8) to 1.2%  $((-.14^2 \times 100))$  or 9.2% of the original percentage of shared variability indicating that 91.8% of the variability shared between negative behavioral communication scores and sociometric ratings could be accounted for by peers' reported impressions of liking. Thus, with both positive and negative social interaction scores, the majority of the variability shared between these interaction scores and sociometric ratings was associated with, or could be accounted for, by variability in the impressions these behaviors were believed to influence.

The percentage of variability shared by various Class Play factors and sociometric ratings received was much less strongly affected by statistically partialing out the effects of sociometric impressions. Using the same calculation procedure that was used with social interaction scores, the percentage of variability shared between the Class Play Likability factor and sociometric ratings when the effects of sociometric impressions were partialled out (i.e., 4.84%) was 40.0% of the variability shared in the zero-order correlations by these two variables (i.e., 12.2%). For the Class Play Aggressive factor score, this partialled percentage of shared variance (1.2%) was 61.7% of the unpartialled percentage

(1.96%). For the Isolated-Withdrawn factor, partialing out the effects of sociometric impressions actually increased the percentage of variance shared between this factor and sociometric ratings from 1.7% to 2.3%. Thus, a larger proportion of the relationship between social interaction scores and sociometric ratings could be accounted for by the relationship between each of these variables and sociometric impressions than was the case with Class Play factor scores.

### Summary and Discussion

The results of the factor analyses presented in this section were fairly consistent regardless of the type of data used (aggregated or unaggregated), the gender of the children, or the type of factor rotation employed. Collectively these analyses indicated that the structure of the Behavioral Communicators of Liking Scale might be described best by two factors; one comprised only of positive items and the other, all negative items. Two items; 'ignores' and 'nice' cross-loaded onto both positive and negative interaction factors. It was decided to retain the item 'ignores you' on the negative factor as doing so enhanced both the test-retest reliability and the validity of this factor without reducing its internal consistency. However, the item 'nice' was not retained as its inclusion on the positive factor did not enhance its psychometric properties.

When the internal consistency for each of these factors was considered, the resultant coefficients were very high for the larger positive factor. For the smaller negative factor, internal consistency was somewhat lower but still at acceptable levels especially when aggregated or mean interaction scores were used. These internal consistency coefficients could be interpreted in terms of the expected correlation between factor scores based on different sets of items drawn from the domain represented by that factor. The greater the internal consistency, the less likely it will be that any person's score on this factor will be dependent on the particular set of items sampled from this domain (Brown,

1987). Given the internal consistencies reported for both the positive and negative factors on this behavioral communication scale, one would expect a high degree of consistency in the scores that children received from same-sex peers even if a different subset of items had been selected from the domain of items represented by each of these factors.

When the test-retest stability of both factors on the Behavioral Communicators of Liking Scale were considered, scores on the positive factor were more stable, on average, than sociometric ratings, peers' impressions of liking, all three Class Play factors as well as negative factor on this behavioral communication scale. This latter factor, though slightly less stable than sociometric ratings and the Class Play Likability factor, was similar in stability to sociometric impressions and the Class Play Aggressive and Isolated-Withdrawn factors. Thus, even the negative interaction factor appeared to be reasonably stable when compared to the other measures used in this study.

When the construct validity of the social interaction scale was evaluated several salient findings emerged. First, the high inter-correlations between behavioral communication scores, especially the positive interaction factor, and peers' impressions of liking could be interpreted as evidence of relatively strong convergent construct validity for Behavioral Communicators of Liking Scale scores as a measure of behavioral communication of liking between children. At the same time, judging from these intercorrelations it appeared that the positive behaviors included on the Behavioral Communicators of Liking Scale may play a more important role in shaping impressions of liking. The fact that positive and negative interaction scores were more strongly related to peers' impressions than were analogous positive and negative Class Play social role scores suggests the behavioral communication scale also possesses discriminant validity and that the intercorrelations between factor scores on this behavioral communication scale and scores on the Peers' Impressions of Liking Scale were not due to the reliance on the same peer report method.

Second, the patterns of correlations between various measures and sociometric

ratings suggest that impressions of liking/interest may play a role in shaping the level of liking reciprocated by peers. First, such impressions, as measured by the Peers' Impressions of Liking Scale, accounted for a large percentage of the variability in the sociometric ratings children received from peers. Furthermore, positive behavioral communication scores had an equally strong statistical association with sociometric ratings. At the same time, children's scores on the Class Play Likability factor were more highly related to the sociometric ratings than were scores received on the negative factor on the Behavioral Communicators of Liking Scale. This suggests that both positive behaviors and positive traits/attributes/roles may exert greater influence on liking than either negative behaviors or negative traits/roles/attributes. Still, the negative interaction scores children received from specific classmates on the Behavioral Communicators of Liking Scale were more highly related to the sociometric ratings children received from these same classmates than were scores received on the Aggressive factor of the Class Play. This suggests that those social behaviors with the potential for conveying disinterest may play a greater role in influencing specific patterns of friendships than do general negative traits and social roles.

The fact that scores on the Behavioral Communicators of Liking Scale were relatively strongly related to sociometric ratings received from peers does not, by itself, demonstrate that this statistical relationship arose because these behaviors have the potential to convey an interest in and a liking for other children. In order to assess this, it was necessary to statistically remove or control for the effect of peers' reported impressions regarding other children's social inclinations. With both positive and negative social interaction scores, the majority of the variability shared between these behavioral communication scores and sociometric ratings could be accounted for, by variability in peers' impressions of liking. This was not the case for analogous positive and negative factors on the Class Play. This pattern of correlations is consistent with the argument that the behavioral

communication scale taps behaviors that are socially relevant in this age group because they serve to convey interest in and liking for others which, in turn, may stimulate a reciprocal response of liking and interest from peers. However, only about one-half of the variability in sociometric ratings received from peers could be accounted for by variability in these peers' impressions of the other child's level of liking for them. This suggests that classmates' levels of liking were also being affected by factors other than their impressions of who liked or was interested in them. If so, a model focusing solely on the communication of liking and an interest in friendship would likely be an incomplete description of the friendship formation process. In addition, a small but appreciable proportion of the relationship between behavioral communication of liking scores and sociometric ratings was not accounted for by variability in peers' impressions of liking and interest. Thus, it appears that, as suggested in Chapter 3, these behaviors likely serve multiple functions. It should be also be noted that these data were not generated through an experimental design. Thus, the most one can conclude from this study is that the inter-correlations found between the measures used in this study were consistent with the model proposed earlier (see Chapter 3). Study 4, which follows, represents an attempt to explore the role of the communication of liking further by trying to systematically manipulate the social behavior of selected children while measuring the impact that this manipulation had on these children's peer relationships.

Finally, in contrast to the positive factor on this behavioral communication scale, the negative factor consistently exhibited weaker predictive and convergent validity as well as lower test-retest reliability and internal consistency. Significantly, however, this was only in comparison to the positive factor on this same scale. When compared to scores on various Class Play factors, negative interaction scores were relatively stable and correlated more highly with sociometric impressions. Thus, though probably a weaker measure of those behaviors most likely to shape peers impressions of other children's social inclina-

tions, this may be a consequence of a stronger role for positive social interactions in communicating level of interest and liking as well as in friendship maintenance. Thus, these findings are congruent with results from Study 1 and 2 indicating a stronger, more consistent communicative impact for these positive behaviors in comparison to those negative behaviors included on the Behavioral Communicators of Liking Scale.

## CHAPTER ELEVEN

### Study 4

#### Social Skills Training Intervention Investigating The Importance of Conveying Liking in Friendship Development

##### Purpose

In the introductory chapters of this dissertation, it was hypothesized that the communication of liking an interest in friendship might facilitate friendship formation by stimulating a reciprocal response of increased liking from the child receiving this relational message. Study 4 was designed to provide an experimental test of this hypothesis by encouraging children enrolled in a social skills training program to direct those behaviors likely to convey these positive attitudes and feelings towards a few selected or targeted classmates. The impact of this intervention on relationships between children in the social skills training program and targeted classmates was then assessed in light of the hypothesized role for the communication of interest and liking in children's friendships.

##### Method

###### Subject Pool and Selection of Treatment Groups

The 260 grade 5 children who participated in Study 3 (see Chapter 10) also formed the subject pool for this study. Of these children, 24 were selected for social skills training. In order to be considered for this intervention program, children had to be experiencing significant difficulties in their relationships with same-sex peers and at least moderate difficulties in their relationships with the majority of their classmates regardless of gender. Specifically, three children from each class were placed on a short-list of

candidates for social skills training. These children were those whose best status ranking (mean sociometric score), either based on ratings from same-sex peers or from all classmates, regardless of gender, were among the 3 lowest for children in that class. Use of these two selection criteria reflected research indicating that same-sex peer relationships are of primary importance at this age while also giving some consideration to the quality of children's relationships with opposite-sex peers as well. Importantly, analyses of treatment effects involved data pertaining only to same-sex peer relationships. Finally, as noted earlier, sociometric criteria were used in selecting potential candidates for this social skills interventions because other researcher have found that involvement in even one close friendship may mitigate possible negative effects of generally poor peer relations. In addition, the development of a few friendships may represent a realistic goal for social skill interventions with such generally rejected children.

Of the 24 children selected for this intervention, 21 were ranked as one of the 3 least-liked in their class using social preference ratings from same-sex peers. The other 3 children were ranked as either fourth or fifth least-liked using these same ratings. As a result, the mean sociometric rating received by these 24 children from their same-sex classmates was 5.03 ( $sd = .68$ ) compared to 3.50 ( $sd = .77$ ) for the other 236 children for whom pre-test data had been collected. This difference was significant at  $p < .001$  using a standard  $t$ -test for differences in the means of two independent groups. In addition, 23 of the children selected for social skills training were ranked as one of the 3 least liked in their class on the basis of sociometric ratings received from all classmates regardless of gender. Thus, the mean overall social status score for children selected for social skills training, based on average sociometric ratings received from all classmates, was 5.65 ( $sd = .52$ ) compared to 4.57 ( $sd = .57$ ) for all other children. Using a  $t$ -test for differences in means between two independent groups, this difference was also significant at  $p < .001$ .

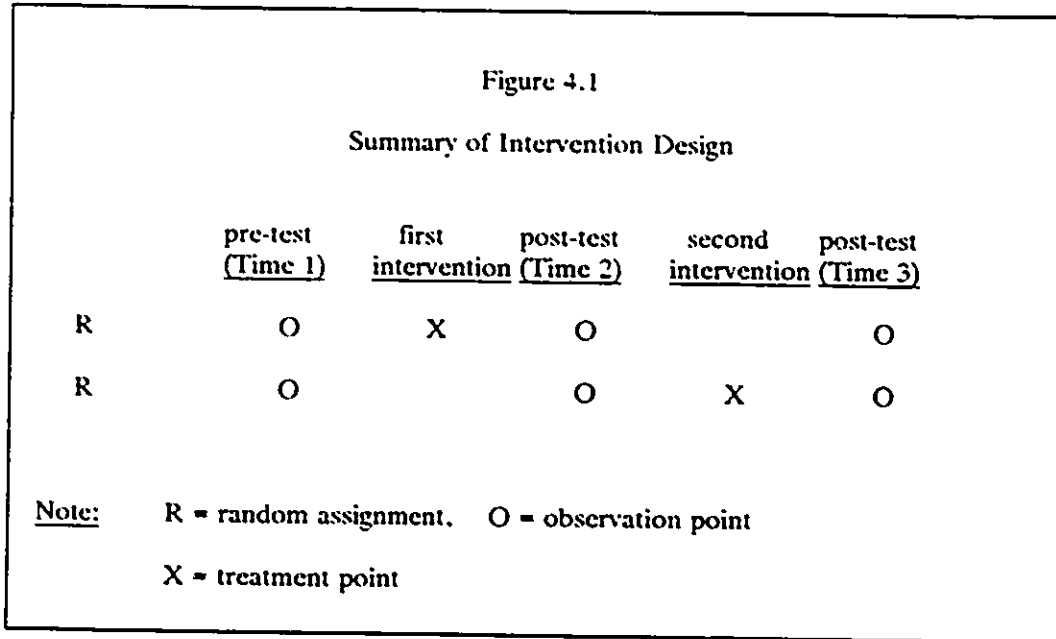
The mean score each child on this short-list of candidates received from all of

his/her classmates on the Behavioral Communicators of Liking Scale was also examined in order to ensure each child's mean score on this measure fell below the thirty-third percentile for the entire sample. The purpose of this last criterion was to ensure an appropriate match between the focus of this social skills program and the behavioral deficits of children selected for this intervention. On this measure, lower scores indicated that the child's interaction patterns were not likely communicating liking for and/or interest in his/her peers. As it turned out, all those children identified as potential candidates for social skills training on the basis of sociometric ratings received from peers also met the criterion based on mean behavioral communication scores.

These intervention choices were then submitted for approval to teachers and principals who selected the two children from the intervention short list for each class whom they felt were in the greatest need of social skill training. Letters were then sent to these children's parents asking permission for their child to participate in this social skills program. In cases where the parents did not wish to avail themselves of this service, a letter of consent was sent to the parents of the third child on the short-list of intervention candidates for that class. This occurred 4 times. In all cases, the parents of the third child agreed to permit their child to be involved in the social skills training program.

#### Intervention sequence

Once these 24 children were selected for social skills training, 12 (one from each class) were randomly assigned to a first treatment group whose social skills training began shortly after the initial pre-test and lasted ten weeks. The other 12 children served as wait-listed treatment controls and received a similar intervention program once the first treatment group had completed their training. This intervention sequence is summarized in Figure 4.1.



Use of this staggered treatment sequence permitted the wait-listed or second treatment group to serve as controls for the first treatment group during the Time 1 to Time 2 period. This treatment sequence also made it possible to assess whether the act of identifying children as being potentially in need of social skills training had any impact on outcome measures since children for both treatment groups were selected at the same point in time (Time 1). In turn, provision of the same social skills program to the wait-listed or second treatment group from Time 2 to Time 3 allowed an evaluation of whether any treatment effects found for the first treatment group (from Time 1 to Time 2) were replicable.

Random assignment to both treatment groups was subject to one restriction: that both boys and girls would be equally divided between the two treatment groups. Because of a higher occurrence rate of peer-related social difficulties for boys in this sample, twice as many boys (16) as girls (8) were selected for social skills training. Thus, 4 girls and 8 boys were randomly assigned to each treatment group.

### Training Protocol

Children were trained individually, once a week for a total of ten one-hour sessions. These individual sessions are described more fully in the training manual reproduced in Appendix D. In the first two sessions all children were given a similar presentation regarding the role that communicating liking might play in friendship formation and maintenance. The emphasis, at this point was on the introduction and development of skills and concepts related to conveying liking and an interest in becoming friends. An example of such a skill would be the ability to monitor peers' responses to their efforts to communicate interest and liking in order to modify the strength or intensity of these communicative overtures. These and other skills were developed and enhanced using the following five steps proposed by Ladd and Mize (1983):

- establishing the intent to learn the skill concept
- defining the skill concept in terms of its attributes
- generating exemplars (both verbally and with active role play)
- promoting the rehearsal and recall of the skill concept (both verbally and behaviorally)
- refining and generalizing the skill concept

In the second training session, discussion increasingly focused on the impressions that the child's behavior might be conveying to classmates concerning his/her social inclinations. Children also role played various communicative sequences with the social skills trainer; trying to either guess the level of interest/liking acted out by the trainer or to communicate the assigned affect themselves. During this practice phase, the social skills trainer provided performance feedback, encouragement and progressively more exacting performance standards.

Having developed these communication skills with the support of a socially

competent trainer and in a context in which the threat of failure was minimized, children were given the opportunity to master these skills gradually in their own peer environment. This was accomplished by having each child select, from a list provided near the end of their second session, two same-sex classmates with whom they wished to become better friends. These peers will be referred to, in subsequent discussions, as primary friendship targets. After choosing these 2 friendship targets, each child also helped select several behavioral goals which, if carried through, would likely convey an interest in being friends with or a liking for each of these two targets.

This focus on improving a small, clearly specified set of the child's peer relationships was chosen for several reasons. First, by focusing children's friendship-making efforts on a small subset of their classmates, it was hoped that the social impact of these efforts would be magnified and hence more readily identified and studied. Second, this approach facilitated skill acquisition by allowing children to concentrate their efforts on a set of clearly defined and circumscribed behavioral assignments directed toward a small set of friendship targets. Finally, the treatment goal for this intervention program was the enhancement of the children's ability to develop and maintain friendships with individual classmates. Concentration of treatment children's efforts on selected friendship targets seemed more consistent with this goal rather than simply encouraging more global or diffuse changes in social behavior.

Each week, relationships between that treatment child and his/her friendship targets were reviewed in order to assess the effects of these 'behavioral' assignments, to solve any problems that may have arisen concerning these targeted relationships during that week, and to encourage sustained or continued effort. In this way, children were afforded the opportunity to refine and elaborate the skills learned or attain operative competence (Bandura, 1982). This phase also involved encouraging children to evaluate their own performance, a skill which Ladd and Mize (1983) argue is essential for skill

generalization and maintenance. Depending on the progress made, children in the intervention program were also allowed to add one extra or late peer friendship target in the seventh session of their training program. In the final session the progress of the child was reviewed with emphasis on what that child had achieved in the course of training. Strategies for maintaining and/or extending any changes the child had brought about in his/her peer relationships were also considered.

### Social Skills Trainers

Two social skills trainers were employed so that the sensitivity of intervention results to individual trainer style could be assessed. These trainers were two students enrolled in the doctoral program in clinical psychology at the University of Ottawa, one of whom was the author of this dissertation. In order to provide for the assessment of trainer-dependent effects, half the children from each treatment group were randomly assigned to each trainer with the only restrictions being that each trainer was to work with only 1 of the 2 children selected from each class and that both trainers would train the same number of male and female subjects in both treatment groups.

### Measures

The four measures used in Study 4 were identical to those employed in Study 3.

- a seven-point Sociometric Rating Scale designed to assess children's social preferences within their peer groups by having children report the level of liking they had for each of their classmates.
- the Behavioral Communicators of Liking Scale on which children reported the frequency with which every other classmate had directed 22 different behaviors toward them during the previous month. Behaviors included on this scale were those with the strongest potential to convey liking and interest as indicated by Studies 1 and 2.

- a seven-point Peer Impressions of Liking Scale which was similar to the Sociometric Rating Scale except that on the impressions scale peers reported how much they thought each other classmate liked them.
- the Revised Minnesota Class Play containing 30 items which assess socially relevant roles, traits and attributes. For each item, children nominated the classmate whom they felt best fit that descriptor.

(For more detailed descriptions of each measure, see Study 3, Chapter 10.)

### Data Collection Procedures

These procedures were described in detail for Study 3 (Chapter 10) but are briefly summarized here for the convenience of the reader. At each data collection point, all 4 measures were administered within a single, 75 minute classroom or group-testing session. The order of presentation of these measures was constant across all test sessions. The Sociometric Rating Scale was completed first, then the Behavioral Communicators of Liking Scale, followed by the Peer Impressions of Liking Scale, and finally, the Revised Minnesota Class Play. The format of each measure was explained to children before they began that instrument. Children filling out these questionnaires were informed that their participation was voluntary, that all answers would be treated as strictly confidential and that, since we were interested in their impressions and feelings, there were no particular answers that were best other than those which reflected their own feelings and opinions. Children then worked along with the test administrator who read each item aloud while checking to ensure that each student was following directions. Halfway through each session, the class was given a short stretch break to help reduce fatigue.

Children completing these questionnaires were not aware that the primary purpose of the two post-test data collection sessions was to evaluate the effects of the social skills training program on relationships involving children enrolled in social skills training and their primary friendship targets. This was achieved in several ways. First, the

data collectors had not been involved in the provision of social skills training to a child from that class. Second, the fact that certain children from each class were selected for social skills training was treated as confidential information. Though these children were not forbidden to disclose the fact of their involvement in social skills training, they were encouraged not to do so since this disclosure might have made their friendship making efforts appear less spontaneous. Third, in post-test data collection sessions children rated all participating classmates and not just those children who had been selected for social skills training. Finally, the study was presented as an investigation into the things children did with their friends rather than as an intervention study.

## Results

### Overview of Analyses

This section will examine treatment-related changes in the relationships between children enrolled in this social skills program and their primary friendship targets. Here, and in subsequent presentation and discussion of the results of this intervention, the term 'first treatment group' will refer to those children receiving the first social skills intervention. Children receiving the second social skills program will be collectively identified as the wait-listed or second treatment group. The term friendship target will be used to refer to those same-sex peers who were selected as friendship targets early in their social skills programs and, thus, were the primary recipients of treatment children's friendship making efforts. Scores received by treatment children on various outcome measures from other peers will not be considered when analyzing treatment effects since it was not expected that significant improvements would occur in these relationships. However, this expectation that relationships between children enrolled in social skills training and those same-

sex classmates not targeted for any specific friendship making efforts or targeted only late in any social skills program would not improve significantly was tested and confirmed through a set of analyses paralleling those reported in this dissertation examining treatment related changes in sociometric ratings received by treatment children from primary peer friendship targets.

Before considering changes in the relationships between children in these treatment groups and their primary friendship targets, a set of preliminary analyses were conducted to assess gender effects, the impact of different social skills trainers and the degree to which these trainers complied with the training protocol described earlier. These analyses will be followed by an evaluation of whether this social skills intervention generated the intended relationship outcomes in terms of increased liking for treatment children being reported by friendship targets. Treatment related changes in the impressions these friendship targets formed regarding treatment children's own level of liking for them will also be considered. This confirmation of changes in the impressions treatment children were conveying to their primary friendship targets is important since the process through which this intervention sought to create improvements in these relationships was through the communication liking and interest in friendship on the part of treatment children. In addition, since this communicative strategy relied on having children in these training programs direct toward these friendship targets those positive behaviors included on the Behavioral Communicators of Liking Scale, treatment related changes in treatment children's scores on this behavioral communication factor will also be assessed. Finally, the inter-relationships between treatment induced changes on all of these measures will be examined in order to determine whether these inter-relationships were consistent with the model proposed for the social role of communication of liking and an interest in friendship.

### Preliminary Analyses

Trainer and Gender Effects. This section addresses the issue of whether any potential treatment effects were qualified either by the trainer involved in any intervention or by the gender of the child enrolled in this program. To this end, a series of analyses were conducted for each of the different outcome variables discussed above. Included as factors in these analyses were treatment group, gender of children within each treatment group, and social skills trainer. For each dependent variable these analyses included three single-time ANOVAs evaluating between-group differences at the time of the initial pre-test and both post-tests and a repeated measures (within-subjects) ANOVA comparing scores received at all three of these times. No significant trainer or gender related effects emerged in any of these analyses. Since the power of these analyses to detect gender and trainer effects appeared to be reasonably large (see Appendix E), these results indicated that neither the particular social skills trainer nor the gender of the children enrolled in these training programs influenced training outcomes. As a result, data were collapsed across both trainer and gender groups in subsequent analyses of treatment effects which are presented later in this results section.

Compliance With Training Protocol. Each social skills trainer received instruction designed to ensure standardization in the delivery of this social skills program (See training manual, Appendix D). All intervention sessions were then audiotaped so that level of compliance to this training protocol could be assessed. Each week, one session conducted by each trainer was randomly selected and reviewed with the project and dissertation supervisor, Dr. Barry Schneider. Adherence to protocol was assessed for each of these randomly selected session by the thesis supervisor using four rating scales designed to evaluate different aspects of compliance. These four scales and the rating criteria used

on each scale were:

a) Did the therapist include all the minimally prescribed components for each session?

- 1 - All components included
- 2 - A few minor components missed
- 3 - Several major components not included
- 4 - Session bore little resemblance to protocol

b) Did the focus of the intervention remain on the importance of communicating an interest in and a liking for ones peers and/or on the behaviors which tend to communicate such interest and liking?

- 1 - Focus was primarily on the importance of communicating liking and interest in friendship formation with only minor attention placed on social processes unrelated to such communication.
- 2 - Focus on communication of liking and interest was maintained but appreciable attention placed on social processes unrelated to such communication.
- 3 - Focus of the session was primarily on social processes other than those related to the communication of interest and liking
- 4 - No attention given to the communication of interest and liking

c) Were there any treatment aspects introduced which represented significant departures from the stated intervention protocol?

- 1 - Complete or near complete compliance with protocol
- 2 - A few minor but noteworthy additions to protocol
- 3 - Several major additions to protocol
- 4 - Session bore little resemblance to protocol

d) Did the focus of problem solving and behavioral assignments remain on relationships between the child enrolled in social skills training and those classmates selected as friendship targets? (question relevant for sessions 3 to 10 only)

- 1 - primary focus was on the improvement of targeted relationships
- 2 - Significant attention given to the improvement of targeted relationships but focus of session was on other issues.
- 3 - Some attention given to issues related to the goal of improving targeted relationships but this was not a major aspect of session.
- 4 - No attention given to targeted relationships.

For each social skills trainer, compliance reviews were conducted on 20 (or 16.6%) of the 120 sessions conducted by that trainer. The ratings received by these sessions on all four compliance scales are listed below in Table 4.1. For the sake of simplicity, the rating criteria for each scale has been reduced to a single-word descriptor on Table 4.1. Specifically, all ratings of '1' have been placed under the heading of "high" compliance. Similarly, ratings of '2' are listed under "good" compliance, ratings of '3' under "fair" and ratings of '4' under "poor" compliance, respectively. In all cases, however, the criteria used to determine level of compliance were those previously listed separately for each scale.

Table 4.1  
Number of Session Receiving Different Ratings  
on Each Compliance-to-Protocol Scale

Scale	Level of Compliance			
	High	Good	Fair	Low
#1 Inclusion of prescribed components	40	0	0	0
#2 Focus on communication of liking	34	6	0	0
#3 Presence of significant additions	37	2	1	0
#4 Focus on targeted relationships	29	3	0	0

Note: only 32 sessions rated on scale #4 as scale applicable only session 3 thru 10.

Considering data presented on Table 4.1, the average compliance rating, across all 4 rating scales, for the 40 selected sessions was 1.09 suggesting a high level of compliance across all sessions sampled. Every session contained all of the components prescribed for that session (Scale 1). The focus in these sessions appears to have consistently remained on the importance of communicating interest in and liking for others (Scale 2). In only one session were there any significant additions to the protocol (Scale 3). In this session, it had been necessary to deal with some other aspects of interpersonal relationships not directly related to the communication of liking and interest. Finally, no session received ratings higher than '2' on the fourth compliance scale indicating that friendship making and problem solving efforts remained focused on relation-

ships with classmates chosen by children in these social skills programs as their friendship targets.

In evaluating the preceding compliance-to-protocol data, it should be noted that the compliance evaluator was aware of the purpose of this study. In addition, the criteria used to rate level of compliance were somewhat qualitative and hence could be more prone to inter-rater disagreement than would more quantitatively structured criteria. At the same time, these compliance ratings do suggest that all of the interventions stressed the communication of liking and an interest in becoming friends, followed fairly closely the training manual protocol, and maintained a focus on the improvement of a small set of targeted peer relationships through behavioral assignments designed to convey such liking and interest.

#### Changes in Sociometric Ratings Received by Children in Each Treatment Group from Primary Friendship Targets

The question of greatest interest was whether there were significant treatment related improvements in the level of liking reported by peer friendship targets for children in each treatment group. In order to address this issue, it was necessary to first calculate the mean sociometric rating received by each treatment child from both his/her primary friendship targets at all three time points. Average mean sociometric ratings were then calculated for each treatment group by summing the mean sociometric ratings received by all the children in that treatment group from their respective primary friendship targets and dividing this total by the number of children in that group. These average mean sociometric ratings are listed in Table 4.2

The first step in assessing the effect this social skills program had on sociometric ratings received from primary friendship targets was to consider the period during which

Table 4.2  
Average Mean Sociometric Ratings (SR) Received By Children  
in Each Treatment Group From Primary Friendship Targets

Treatment Group	Time 1		Time 2		Time 3	
	<u>SR</u>	<u>sd</u>	<u>SR</u>	<u>sd</u>	<u>SR</u>	<u>sd</u>
First	5.08	.60	3.75 <sup>a</sup>	1.08	3.23	1.33
Second	5.33	1.16	5.46	1.01	3.50 <sup>a</sup>	1.37

Note Lower scores indicate higher levels of liking for treatment children were reported by primary friendship targets.

Sample size for both treatment groups was 12 except at Time 3 when N = 11 for the first treatment group.

sd = group standard deviation

a = post-treatment scores

only children in the first treatment group received social skills training. Prior to this intervention (at Time 1), no significant differences in the mean sociometric ratings received from respective primary friendship targets emerged when these treatment groups were compared through a between-groups ANOVA. However, after children in the first treatment group had completed their social skills training (Time 2), a similar between-groups ANOVA yielded a significant main effect for Treatment Group:  $F(1,22) = 16.06$   $p < .001$ . At this time, the average mean sociometric rating received from primary friendship targets by children in the first treatment group was significantly lower (more positive) than similar ratings received by children in the wait-listed or second treatment group (See Table 4.2).

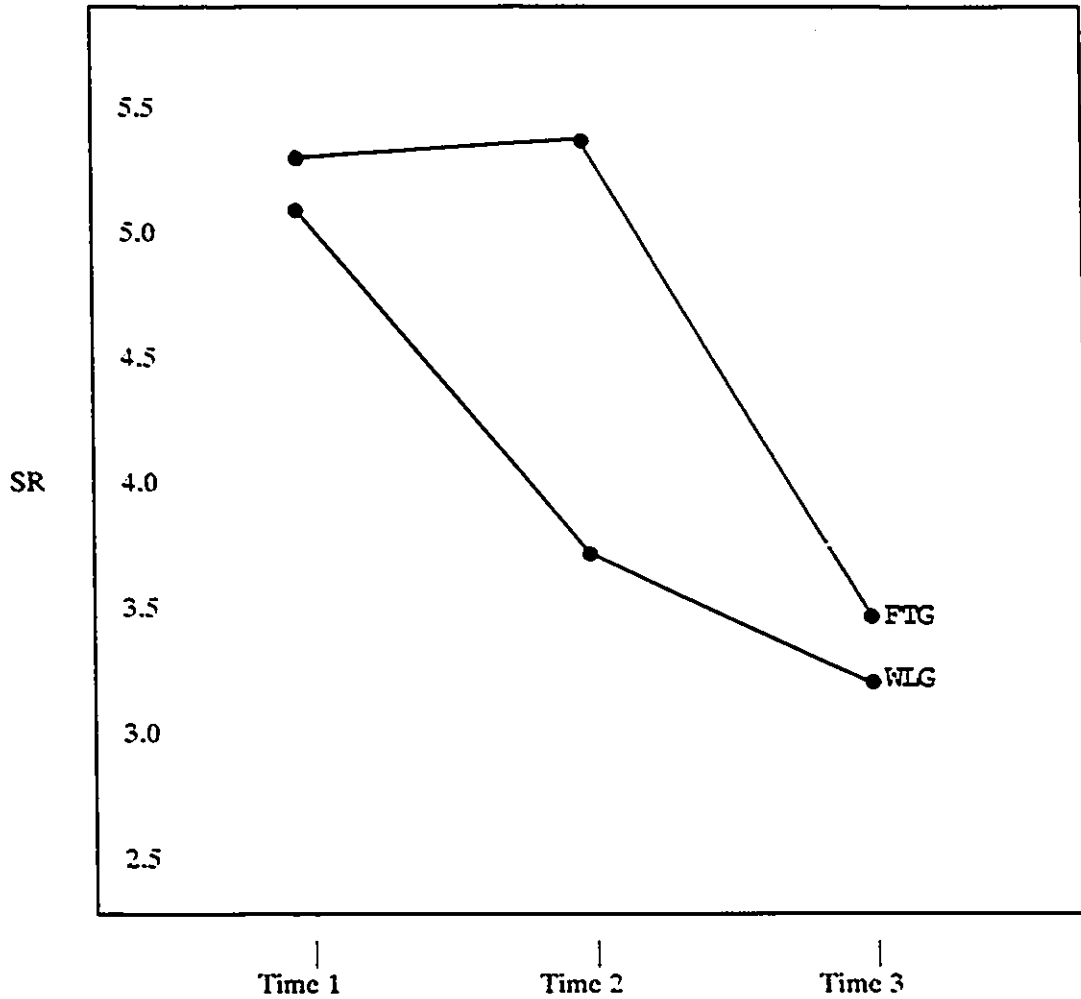
In order to assess whether this difference represented a significant treatment related gain for the first treatment group, a Treatment Group (2) X Time (2) ANOVA

was conducted. In this analysis, mean sociometric ratings received by children in both treatment groups from primary friendship targets at Times 1 & 2 provided the repeated measure. This within-subjects ANOVA yielded a significant Treatment Group X Time interaction with  $F(1,22) = 9.77$   $p < .005$ : indicating a significant difference in the amount of change experienced between Times 1 & 2 by children in each treatment group in terms of sociometric ratings received from primary friendship targets. This difference in rate of change over time (slope) is illustrated in Figure 4.2. Examination of this figure reveals that children in the first treatment group displayed a significantly greater rate of improvement in levels of liking reported by friendship targets during the period in which this group was actively involved in social skills training. When separate within-subjects  $t$ -tests were conducted for for each treatment group comparing mean sociometric ratings received by children in that group at Times 1 and 2, only the children in the first treatment group displayed a significant difference or change across this time period with  $T(11) = 4.93$   $p < .001$ . In these planned comparisons, as well as in two similar contrasts involving Time 2 and Time 3 data, the alpha criterion was set at  $.05/4$  or  $.0125$  for each of these comparisons in order to maintain the overall alpha for the family of planned orthogonal comparisons at the  $.05$  level (Keppel, 1982, pp. 145-146; see also Appendix F).

Using a similar analytical approach, changes in the mean sociometric ratings received by treatment children from primary friendship targets between Times 2 and 3 were also assessed. During this time period, only children in the second or wait-listed treatment group received social skills training. As reported earlier, children in the first treatment group received significantly more positive mean sociometric ratings from primary friendship targets at Time 2 than did children in the second treatment group. However, when a similar between-groups ANOVA was conducted on the mean sociometric ratings received from primary friendship targets at Time 3, these group differences were no longer significant. The most likely reason for this lack of significant group differ-

Figure 4.2

Average Mean Sociometric Ratings (SR) Received By Children In Each Treatment Group From Primary Friendship Targets



**Note** SR = average mean sociometric rating received with lower scores indicating a higher or more positive level of liking reported by primary friendship targets for children in that treatment group.

FTG = first treatment group (received training from T1 to T2)

WLG = wait-listed treatment group (received training from T2 to T3)

ences at Time 3 appears to be that, from Time 2 to Time 3, the mean sociometric ratings received by children in the second treatment group improved at a greater rate. In order to ascertain whether or not this difference in rate of change (or slope) was significant, a Treatment Group (2) X Time (2) ANOVA was conducted using the mean sociometric ratings received from primary friendship targets at Times 2 and 3 as the repeated measure. This analysis yielded a significant main effect for Time with  $F(1,21) = 21.29$   $p < .001$ , reflecting the fact that both treatment groups improved over this time period. In addition, the Treatment Group X Time interaction was also significant with  $F(1,21) = 8.27$   $p < .01$  confirming that the rate of change in mean sociometric ratings received by children in the second or wait-listed treatment group from primary friendship targets was significantly greater than that of the first treatment group during the time in which the second treatment group was actually enrolled in the training program. In fact, only the children in the second treatment group displayed a significant improvement or change across the Time 2 to Time 3 period when separate within-subjects  $t$ -tests, were conducted comparing the mean sociometric ratings received by children within a single treatment group at Times 2 and 3. Again a Bonferroni adjusted per comparison alpha of .05/4 or .0125 was employed in order to maintain the overall alpha for this family of planned orthogonal comparisons at the .05 level. For the second treatment group this comparison yielded the following  $T$ -value: 4.57 (11)  $p < .001$ . The corresponding  $T$ -value for the first treatment group was only (10) 1.61  $p < .15$  indicating, at most, a non-significant trend for continuing improvement during this group's post-treatment follow-up phase.

Summarizing the foregoing analyses, when children were exposed to this social skills program they experienced significant improvements in the sociometric ratings of liking they received from their primary friendship targets, that is, from those peers toward whom each treatment child focused for their friendship making efforts throughout the intervention. Since there was no spontaneous improvement in the wait-listed group's rela-

tionships with primary friendship targets during the period that these children served as wait-listed controls, this would appear to represent a genuine treatment effect. In addition, relationships between children in the second treatment group and their primary friendship targets did improve significantly during this Time 2 to Time 3 period which corresponded to the time in which this group was enrolled in social skills training. Finally, improvements in the relationships between children in the first treatment program and their primary friendship targets were maintained at the Time 3 post-test.

#### Changes in Primary Friendship Targets' Impressions of Treatment Children's Liking for Them

An additional question of relevance to this dissertation was whether this training program resulted in significant changes in the impressions primary friendship targets formed regarding treatment children's level of interest and/or liking for them. In order to address this issue, it was necessary to calculate, for each time point, the mean score each treatment child received from his/her primary friendship targets on the Peer Impressions of Liking Scale. For the sake of simplicity, this mean score will be referred to as this treatment child's mean impressions score and will be interpreted as an index of the impression that this treatment child was conveying to his/her primary friendship targets regarding whether or not he/she liked them. Thus, testing for treatment related decreases in the average mean impressions scores of each treatment group, in effect, assesses whether or not treatment children were successful in their attempts to communicate interest and liking toward their primary friendship targets. Average mean impressions scores were then calculated for each treatment group, for each time point, by summing the mean impressions scores across all the children in this treatment group and dividing this total by the number of children in that group. The resultant scores are listed in Table 4.3.

Table 4.3

Average Mean Impressions of Liking (PI) Conveyed By Children  
in Each Treatment Group to Primary Friendship Targets

Treatment Group	Time 1		Time 2		Time 3	
	PI	sd	PI	sd	PI	sd
first	5.25	.97	2.58 <sup>a</sup>	1.26	2.73	1.25
second	4.38	1.28	4.33	1.23	3.16 <sup>a</sup>	1.44

**Note** Lower scores indicate primary friendship targets had impression that children in this treatment group liked them more.

Sample size for both treatment groups was 12 except at Time 3 when N = 11 for the first treatment group.

sd = group standard deviation      a = post-treatment scores

When the mean sociometric impressions initially conveyed to primary friendship targets at Time 1 by children in each treatment group were compared in a one-way ANOVA, no significant between-group difference emerged. At Time 2, a similar between-groups ANOVA yielded a significant main effect for Treatment Group with  $F(1,22) = 11.86$   $p < .003$ . Examination of relevant group means (Table 4.3) revealed that, at Time 2, the average mean impression of liking conveyed by children in the first treatment group to their primary friendship targets was significantly lower (more positive) than the average mean impression conveyed by children in the second or wait-listed treatment group to similar targets. In order to assess whether this advantage, at Time 2, for children in the first treatment group represented a significant treatment effect in terms of impres-

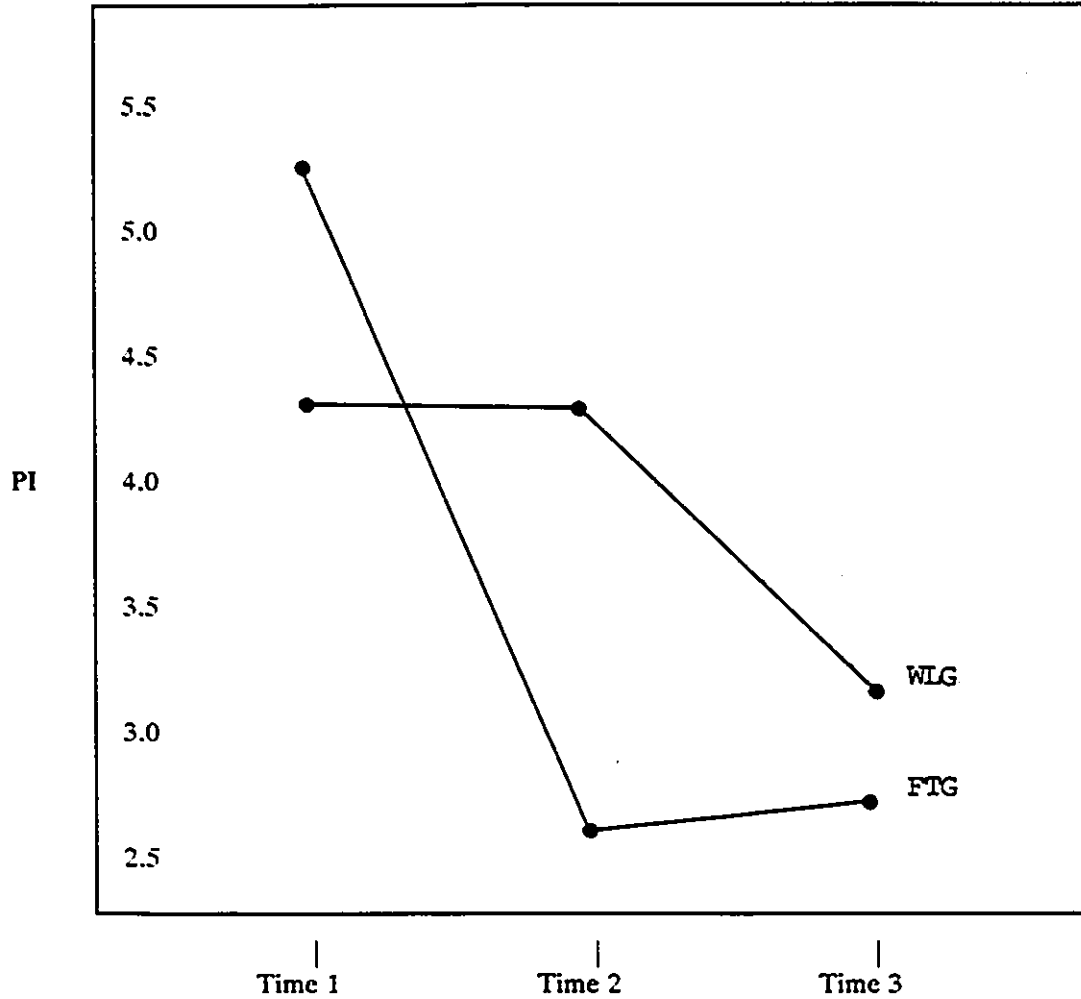
sions of liking, a Treatment Group (2) X Time (2) ANOVA was conducted using the mean impressions of liking conveyed by children in each treatment group to primary friendship targets at Times 1 and 2 as the repeated measure. This analysis yielded a significant Treatment-Group X Time interaction:  $F(1,22) = 20.49$   $p < .001$  indicating a significant difference in the rate of change over time (slope) in the impressions of liking conveyed by children in the each treatment group. A graphic representation of these data in Figure 4.3, indicates that children in the first treatment group experienced significantly greater improvement in their mean impressions of liking scores compared to changes in similar impressions conveyed by children in the wait-listed treatment group.

In order to further explore these results, two separate within-subjects  $t$ -tests, one for each treatment group, were conducted comparing the mean sociometric impressions conveyed by children in that group at Times 1 and 2. Using the Bonferroni per comparison alpha adjustment procedure, as recommended by Hays (1983) and Keppel (1982), the alpha criterion for each of these comparisons, as well as two similar contrasts involving scores received at Times 2 and 3, was set at  $.05/4$  or  $.0125$ . When mean sociometric impressions conveyed to primary friendship targets at Times 1 and 2 were considered for each treatment group separately, only the children in the first treatment group displayed a significant difference or change across this time period:  $T(11) = 6.05$   $p < .001$ .

Changes in the mean sociometric impressions conveyed to primary friendship targets by children in each treatment group occurring between Times 2 and 3 were also assessed. During this period, only children in the wait-listed or second treatment group were being actively encouraged to convey liking for and interest in their primary friendship targets. As reported earlier, the first treatment group conveyed significantly higher levels of liking for and interest in their primary friendship targets than did the second treatment group immediately prior to the start of this latter group's training program. However, this difference was no longer significant at Time 3 using a similar between-groups ANOVA.

Figure 4.3

Average Mean Impression of Liking (PI) Conveyed to Primary Friendship Targets by Children in Each Treatment Group



**Note** lower scores indicate a more positive impression of liking being conveyed by children in this treatment group toward primary friendship targets.

FTG = first treatment group (received training from T1 to T2)

WLG = wait-listed treatment group (received training from T2 to T3)

Visual inspection of the changes in mean impressions of liking conveyed by children in each treatment group (Figure 4.3) suggests that the reason why these two treatment groups were no longer significantly different at Time 3 was that during the Time 2 to Time 3 period, only the mean impressions conveyed by children in the second treatment group improved. In order to ascertain whether or not this difference in rate of change (or slope) in impression of liking scores was significant, a Treatment Group (2) X Time (2) ANOVA was conducted using the mean sociometric impressions conveyed to primary friendship targets by children in both treatment groups at Times 2 and 3 as the repeated measure. This analysis yielded a marginally significant Treatment Group X Time interaction:  $F(1,21) = 4.18$   $p = .054$  indicating a near-significant trend for children in the second treatment group to have experienced a greater rate of improvement in the mean impressions of liking they were conveying to their primary friendship targets during the Time 2 to Time 3 period. Consistent with this result, when two separate within-subjects t-tests were conducted, each comparing the mean impressions of liking scores received by children in a single treatment group at Times 2 and 3 using a Bonferroni adjusted per comparison alpha of  $.05/4$  or  $.0125$ , only the children in the second treatment group displayed a near-significant improvement or change across this time period:  $T(11) = 2.36$   $p < .04$ .

Summarizing the foregoing analyses of changes in the impressions of liking conveyed by children enrolled in social skills training to primary friendship targets: When children were exposed to this social skills program they experienced improvement in the impressions they conveyed to primary friendship targets. This treatment effect appeared to occur in both groups but was greatest in the first treatment group during the time period in which these children were actively engaged in social skills training (Time 1 to Time 2). Changes in the sociometric impressions conveyed by children in the second treatment group, though less dramatic than that which occurred with the first group, also coincided with the timing of these children's social skills training. Thus, it would appear that this

intervention, besides increasing the level of liking which primary friendship targets expressed for children enrolled in this training program, also influenced the impressions that these primary friendship targets received regarding whether or not children in each treatment group liked them.

#### Changes in Positive Behavior Ratings Received from Primary Friendship Targets by Children in Each Treatment Group

In this section, the issue to be addressed is whether or not the frequency of positive social behaviors emitted by children enrolled in this social skills training changed as result of this intervention. Positive behavioral communication scores received by each treatment child from each of his/her same-sex primary friendship targets were calculated by summing the behavioral ratings received from any given primary friendship target on all 16 positive behavior items except 'nice' and then dividing this total by 15. Resultant mean score values could range from '1' to '3'. A score of '1' would signify that, during the last month, none of these positive behaviors had been directed by this child toward the primary friendship target doing the rating. In contrast, a '3' would indicate that each of these 15 positive behaviors had been directed three or more times toward that friendship target by this treatment child during this same time period. It was then necessary to calculate the mean positive behavioral communication score received by that child from both of his/her primary friendship targets. These mean positive behavioral scores were then summed across all each treatment group and divided by the number of children in that treatment group to determine the average mean positive behavioral communication score received by all the children in this treatment group. For each treatment group, these average mean scores are listed in Table 4.4.

When the mean positive behavioral scores received by children in both treatment

Table 4.4

Average Mean Positive Behavioral Communication Scores (PBC)  
Received by Each Treatment Group From Primary Friendship Targets

Treatment Group	Time 1		Time 2		Time 3	
	<u>PBC</u>	<u>sd</u>	<u>PBC</u>	<u>sd</u>	<u>PBC</u>	<u>sd</u>
first	1.40	.22	1.79 <sup>a</sup>	.41	1.81	.43
second	1.48	.24	1.55	.28	1.77 <sup>a</sup>	.38

Note Higher scores indicate greater frequency in positive behaviors directed by treatment children toward primary friendship targets

Sample size for both treatment groups was 12 except at Time 3 when N = 11 for the first treatment group.

sd = group standard deviation    a = post-treatment scores

groups from their primary friendship targets at the time of the original pre-test were compared in a one-way ANOVA, no significant between-groups differences emerged. At Time 2, after the first treatment group received training, a similar between-groups ANOVA yielded a non-significant trend for the first treatment group to receive higher, more positive, mean positive behavioral communication scores from their primary friendship targets:  $F(1,22) = 2.80$   $p < .10$ . In order to assess whether this represented a significant treatment-related change, a Treatment Group (2) X Time (2) ANOVA was conducted using mean positive behavioral communication scores received by the children in each of these treatment groups from friendship targets at Times 1 and 2 as the repeated measure. This within-subjects analysis yielded a significant Treatment Group X Time interaction:  $F(1,22) = 6.61$   $p < .02$  indicating that the rate of change over time (or slope) for these two

treatment groups were significantly different from each other. Examination of these changes as graphed in Figure 4.4 indicates that this difference involved a treatment related advantage for the first treatment group from Time 1 to Time 2 in terms of greater improvement in the frequency of positive behaviors that friendship targets reported treatment children directing toward them.

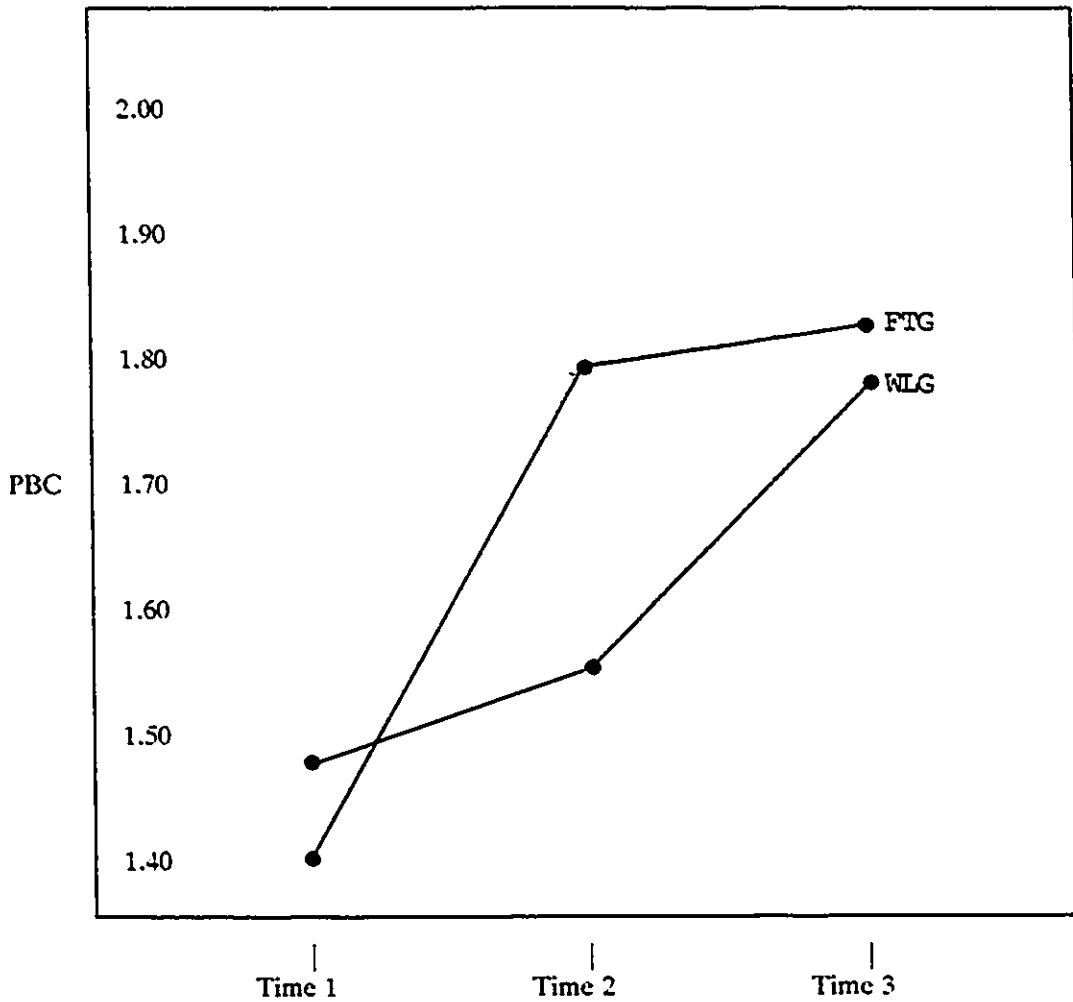
In order to confirm this assessment, two separate within-subjects  $t$ -tests, one for each treatment group, were conducted comparing mean positive interaction scores received by children in that group at Times 1 and 2, with the per comparison alpha criterion set at .05/4 or .0125. For the Time 1 to Time 2 period, only the children in the first treatment group displayed a significant difference or change across this time period when change within each treatment group was considered separately:  $T(11) = -4.43 p < .001$ .

Similar analyses were also conducted comparing mean positive interaction scores received by children in each treatment group from their primary friendship targets at Times 2 and 3. During this time period, only children in the second treatment group were being actively encouraged to increase the frequency with which they directed these positive behaviors toward their primary friendship targets. As reported earlier, at Time 2 there was a non-significant trend for children in the first treatment group to be directing more positive behaviors designed to convey liking toward their friendship targets. By the time the wait-listed or second treatment group had completed their own social skills training at Time 3, there was virtually no difference in the levels of such positive behaviors children in each group were directing toward their primary friendship targets. Thus, the ANOVA comparing mean positive behavioral scores at Time 3 yielded a highly non-significant main effect for Treatment Group:  $F(1,21) = .058 p < .82$

The reason for this disappearance of any appreciable difference in the levels of positive behaviors for each treatment group becomes more evident when changes in posi-

Figure 4.4

Average Mean Positive Behavioral Communication Scores (PBC)  
Received By Each Treatment Group From Primary Friendship Targets



**Note** PIS = average mean positive behavioral scores received by treatment children with higher scores indicating greater frequencies of these positive behaviors being reported by primary friendship targets

FTG = first treatment group (received training from T1 to T2)

WLG = wait-listed treatment group (received training from T2 to T3)

tive behavior on scores during the Time 2 to Time 3 period are compared through a Treatment Group (2) X Time (2) within-subjects ANOVA. In this analysis, the repeated measure was the mean positive behavioral communication scores received by children in both treatment groups from their primary friendship targets at Times 2 and 3. The resultant Treatment Group X Time interaction:  $F(1,21) = 4.01$   $p = .054$  indicates a marginally significant difference between the two treatment groups in terms of the change children in each group experienced in the mean positive interaction scores they received during this period. Examination of the relevant group means as graphed on Figure 4.4 indicates that the rate of change (slope) in mean positive interaction scores was greater for the second treatment group during the period in which this group was actively enrolled in social skills training than it was for the first treatment group who were no longer receiving social skills training. As a result, when the changes in mean positive interaction scores received across this period were assessed separately for each treatment group using single group within-subjects  $t$ -tests and a protected per comparison alpha of .0125, the resulting  $t$ -value for the first treatment group was non-significant:  $T(10) = -.66$   $p > .50$  while the  $t$ -value for the second treatment group was significant:  $T(11) = 2.99$   $p < .01$ . These two comparisons indicate that while the mean positive interaction scores that the second treatment group received improved significantly during the period in which these children were enrolled in social skills training, similar scores received by the first treatment group during this same time period did not.

Integrating the above analyses, children in both treatment groups experienced significant improvements in the mean positive interaction scores that they received from primary friendship targets during the period in which their treatment group had been actively enrolled in social skills training. For the first treatment group, this change occurred in between Time 1 to Time 2. During this period, the second treatment group was functioning as a wait-listed control and experienced virtually no change in their mean

positive interaction scores. When this second treatment group finally received social skills training, these children also experienced significant improvement in mean positive interaction scores they received from their primary friendship targets.

#### Changes in Negative Behavior Ratings Received by Children in Each Treatment Group from Primary Friendship Targets

This section examines whether or not levels of negative social behaviors emitted by children enrolled in social skills training changed as a result of this intervention. The relevant variable here, therefore, is the score each treatment child received from each of his/her same-sex primary friendship targets for the negative factor on the Behavioral Communicators of Liking Scale. These scores were derived by summing the ratings received from any given primary friendship target on all 6 negative behavior items on this scale and then dividing this total by 6. Negative items on this scale were reverse coded such that lower ratings indicated higher frequencies for these behaviors. Thus, as was the case with mean positive behavioral communication scores, higher mean negative behavioral communication score values indicate a pattern of interactions that should be more likely to convey interest and liking to the friendship target doing the rating on the Behavioral Communicators of Liking Scale. Again, mean score values could range from '3' to '1'

Once the negative behavioral score received by any treatment child from each one of his/her primary friendship targets had been calculated, the mean negative behavioral score received by that child from both of his/her primary friendship targets was determined. These mean negative scores were then summed and averaged across all the children in a given treatment group in order to generate average mean negative behavioral communication scores for that treatment group for each time point. These average mean

negative interaction scores are listed in Table 4.5.

Table 4.5

Average Mean Negative Behavioral Communication Scores (NBC)  
Received by Each Treatment Group From Primary Friendship Targets

Treatment Group	Time 1		Time 2		Time 3	
	<u>NIS</u>	<u>sd</u>	<u>NIS</u>	<u>sd</u>	<u>NIS</u>	<u>sd</u>
first	2.35	.31	2.57 <sup>a</sup>	.37	2.74	.21
second	2.31	.44	2.40	.37	2.49 <sup>a</sup>	.31

Note Higher scores indicate lower frequencies of negative behaviors directed by treatment children toward primary friendship targets during the preceding month.

Sample size for both treatment groups was 12 except at Time 3 when N = 11 for the first treatment group.

sd = group standard deviation      a = post-treatment scores

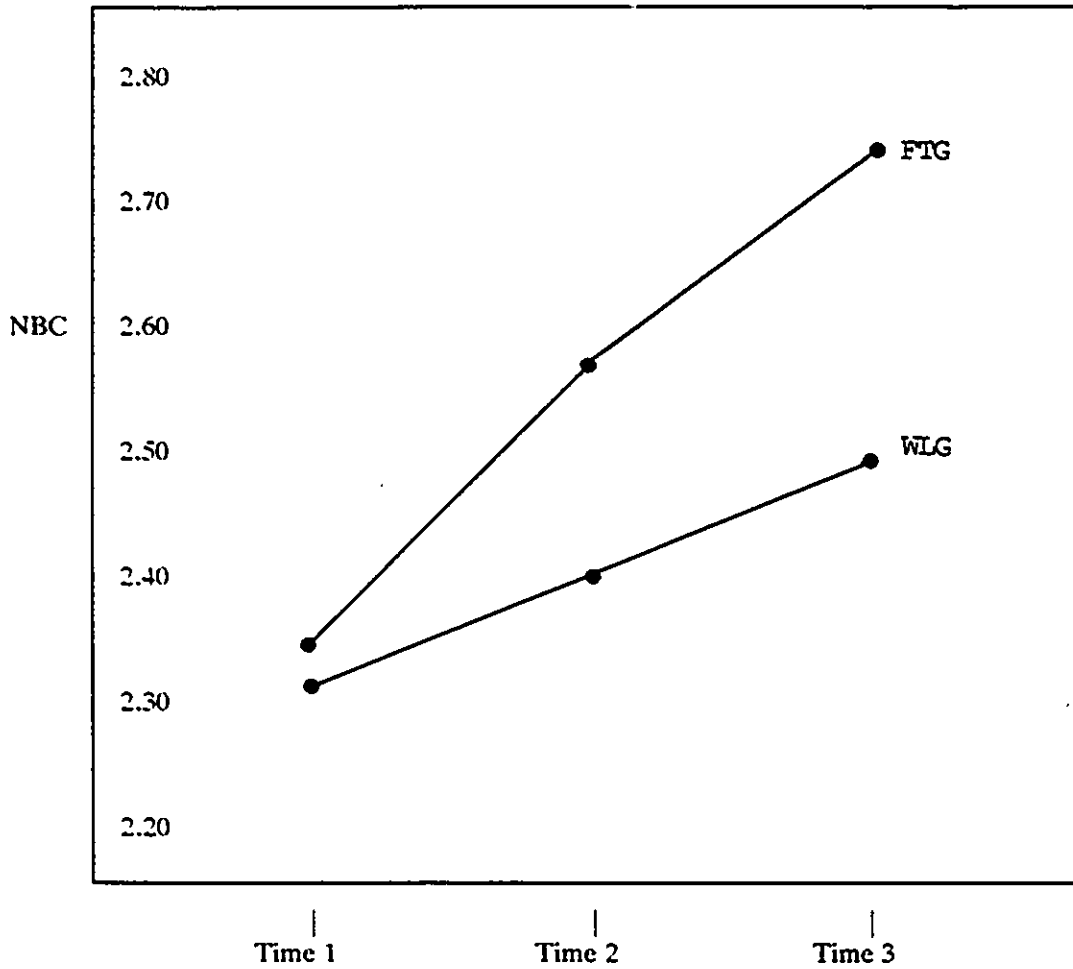
The first set of analyses conducted on these data explored changes occurring between Time 1 and Time 2 in terms of mean negative interaction scores received from primary friendship targets. When between-group differences in mean negative behavioral scores received at either Time 1 or Time 2 were analyzed separately using one-way ANOVAs, no significant effects emerged indicating that the two treatment groups were not significantly different either initially or at Time 2 after the first treatment group had completed social skills training. Changes in mean negative behavioral communication scores received from primary friendship targets across this time period were assessed using a Treatment Group (2) X Time (2) ANOVA in which these mean scores received by children in both treatment groups at Times 1 & 2 was the repeated measure. Only the main

effect for Time even approached significance:  $F(1,22) = 3.19$   $p < .10$ . This main effect for time indicates that children in both treatment groups displayed a non-significant trend for improvement in the number of negative behaviors reported by respective primary friendship targets from Time 1 to Time 2. Given that only the first treatment group was actively engaged in social skills training during this period, such change cannot be attributed to this treatment particularly given the absence of a significant Treatment X Time interaction. This pattern of change is reproduced graphically in Figure 4.5 which depicts the average mean negative interaction scores received by children in each treatment program from their primary friendship targets.

A similar set of analyses were conducted in order to determine whether children in the wait-listed treatment group experienced significant treatment-related decreases in their negative interactions with their primary friendship targets. These analyses, therefore involve data collected at Times 2 and 3. The one-way ANOVA comparing mean negative behavioral scores for each treatment group at Time 3, indicated significant between-group differences:  $F(1,21) = 4.73$   $p < .05$ . When one refers to Table 4.4 it is evident that children in the first treatment group received significantly higher (better) mean negative interaction scores from their primary friendship targets than did children in the second treatment group at Time 3. However, this between-group difference in each group's mean negative behavioral scores at Time 3 was almost of the same magnitude as that which existed at Time 2. At that time, a similar ANOVA did not even approach significance ( $P > .25$ ). Thus, the main reason for the significant difference in the mean negative interaction scores received by children in each treatment group at Time 3 does not appear to be a relative gain by the first treatment group over the Time 2 to Time 3 period. Rather, this pre-existent between-groups difference appears to have become significant as a result of a reduction in within-group variability at Time 3 (See Table 4.5) perhaps because children in the first treatment group were approaching the ceiling value for mean negative behavioral

Figure 4.5

Average Mean Negative Behavioral Communication Scores (NBC)  
Received By Each Treatment Group From Primary Friendship Targets



Note NBC = average mean negative behavioral communication scores received by treatment children with lower scores indicating greater frequencies of these negative behaviors

FTG = first treatment group (received training from T1 to T2)  
WLG = wait-listed treatment group (received training from T2 to T3)

scores (3). Indeed, both treatment groups appear to have experienced a similar absolute degree of change in their average mean negative behavioral communication scores from Time 2 to Time 3. Confirming this assessment, when a Treatment Group (2) X Time (2) ANOVA was conducted using mean negative behavioral scores at Times 2 & 3 as a repeated measure, only the main effect for Time approached significance:  $F(1,21) = 3.87$   $p < .07$ . As this main effect for Time indicates an improvement over time not restricted to any particular treatment group, again no conclusion of a treatment effect on mean negative interaction scores seems warranted.

#### Relationship Between Treatment Effects Involving Different Variables

The model proposed for the social role of communication of interest and liking would suggest that improvements in primary friendship targets' liking for treatment children should be related to, or predicted by, changes in the frequency with which treatment children directed behavioral communicators of interest and liking towards these friendship targets. Furthermore, this model would also predict that much of the statistical relationship between changes in these two variables should be accounted for by concomitant changes in the impressions conveyed by treatment children to these primary friendship targets regarding the level of liking that treatment children held for these friendship targets.

In order to determine whether the changes on the various measures collected in this intervention study were inter-correlated in the manner predicted, it was first necessary to derive change scores for each variable. Several factors were considered in deciding how such change scores were to be calculated. First, since children were encouraged in this social skills training program to direct their friendship making efforts only toward a small subset of specific friendship targets, the following analyses are based only upon changes which occurred in scores given to treatment children by such primary friendship

targets. Second, the calculation of change scores for each treatment child was based only on changes which occurred during the period when that child was actively involved in their social skills program. This was done because, a) this was the time period when the social behavior of any treatment child was actually being experimentally manipulated and b) this was the time period when the treatment group, to which this child had been randomly assigned, had experienced statistically significant treatment effects. Thus, for each child enrolled in this social skills program, a single change score was calculated for each outcome variable based on the change which occurred in the scores received from primary friendship targets during this child's intervention period.

The first step in deriving these change scores was to standardize the mean scores received by children in both treatment groups from primary friendship targets at each time point. In other words, the means and standard deviations used to generating these Z-score conversions were based on the combined distributions of scores received by both treatment groups from their respective primary friendship targets at that particular point in time. Such standardization when carried out in this manner before calculation of any index of change across time, serves to eliminate the effects of any systematic change in the distribution of scores on any variable that were not specifically due to the effects of the experimental intervention.

Once this Z-score transformation was accomplished, a single change score was calculated for each variable for each child by subtracting the Z-score any child received on that variable immediately following his/her social skills training from the Z-score received immediately prior to that intervention. For children in the first treatment group this involved subtracting standardized Time 2 scores from standardized Time 1 scores. For children in the second treatment group, this involved subtracting standardized Time 3 scores from those received at Time 2.

This procedure resulted in all 24 children having a single change score for each

of the following variables: Sociometric ratings given to treatment children by primary friendship targets, impressions of liking conveyed by treatment children toward such friendship targets, as well as the positive interaction scores derived from these friendship targets' responses on the Behavioral Communicators of Liking Scale. Change scores were not calculated for the negative interaction factor on this behavioral communication scale since no significant treatment related effects were found for this variable. For those variables for which change scores were calculated, positive change score values indicate a treatment related increase in the actual mean score that this treatment child received from his/her primary friendship targets relative to the mean and standard deviation for all such scores received by all children in either treatment group from their primary friendship targets. For positive behavioral scores, such an increase across time would indicate an improvement in the treatment child's social interactions with his/her primary friendship targets. For sociometric ratings received by treatment children as well as for sociometric impressions conveyed by treatment children to their primary friendship targets, negative change score values are the ones which would signify a treatment related improvement for these variables.

A similar change score was also calculated for the Likability factor on the Class Play (see Study 3). The reason for also considering the degree to which treatment related changes on this Likability factor predicted changes in primary friendship targets level of liking for children enrolled in social skills training, was to rule out the possibility that any identified inter-relationships were simply due to a common measurement method, that is, the use of peers as primary informants. As noted earlier, the Likability factor on the Class Play measures children's perceptions of classmates' general social attributes and roles in terms of traits that conceptually parallel the prosocial behaviors that are contained on the positive factor for the Behavioral Communicators of Liking Scale. However, this latter scale was designed to measure specifically those interactions specific to any given

dyad which were likely to convey interest and liking.

Once these change scores were calculated for each of the above variables, several sets of correlation coefficients were calculated. The first set of coefficients assessed the correlation between the positive factors on each of the Class Play and the Children's Social Interaction Scale with the sociometric ratings of liking given to treatment children by their primary friendship targets. The second set of coefficients involved correlations between these same two factors and the sociometric impressions conveyed by treatment children to their respective primary friendship targets. Finally, the first-order partial correlations between these positive factors and the sociometric ratings given to treatment children by their primary friendship targets were also calculated with the effects of these friendship targets' impressions regarding how much treatment children liked them partialled out. This latter coefficient, thus represents an index of the strength of relationship between these positive factors and sociometric ratings received by treatment children that can not be accounted for by the impressions of liking being conveyed to these primary friendship targets by the children in these treatment groups. Each of these sets of correlation coefficients are listed in Table 4.6.

First considered in evaluating the results of these analyses will be the relation between treatment-related changes in levels of positive social behaviors directed toward primary friendship targets and changes in levels of liking reported by these targets for these treatment children. Perhaps the first point of interest in examining this relationship is that changes in mean positive interaction scores received from primary friendship targets provided a much better prediction of changes in mean sociometric ratings received from these same targets than did changes in mean Likability scores on the Class Play. Specifically, 38.4% (i.e.,  $.62^2$ ) of the variability in standardized change scores for sociometric ratings could be accounted for by variability in standardized change scores for the positive interaction factor on the Behavioral Communicators of Liking Scale. In contrast,

Table 4.6

Correlations Between Changes in Sociometric Ratings (SR), Peer Impressions (PI), Positive Behavioral Communication (PBC) and Likability (CP-L) Scores Received by Both Treatment Groups From Primary Friendship Targets

Predictor Variables	Criterion Variables		
	SR	PI	SR:PI
PBC	.62 (.002)	-.5 (.01)	-.44 (.02)
CP-L	-.10 (NS)	-.25 (NS)	.06 (NS)

Note probability levels placed in parentheses after each coefficient

N = 24 for all coefficients

SR:PI signifies 1st order partial correlations with effects of impressions of liking reported by peers partialled out

only 1% (i.e.,  $.10^2$ ) of this variability in changes in sociometric ratings received by children during their respective intervention programs could be accounted for by similar changes on the Class Play Likability factor. The fact that change in the frequency with which treatment children directed these positive behaviors toward their friendship targets provides a reasonable level of prediction for changes in levels of liking reported by these targets suggests that these positive behaviors did in fact stimulate the increases found in the liking that primary friendship targets reported for the children enrolled in social skills training. At the same time, a substantial percentage of the variability in change scores for

sociometric ratings was not shared by change scores on the positive interaction factor. This may be due, in part, to limitations in the test-retest reliability of each of these measures since such limitations in reliability would serve to attenuate or set a ceiling on the possible correlation between sociometric ratings and positive interaction scores (Brown, 1983). However, it also seems very likely that factors other than changes in levels of the positive behaviors listed on the interaction scale influenced the sociometric ratings children in each treatment group were receiving from their respective friendship targets. If so, this would also serve to reduce the correlation between change in sociometric ratings and change in positive interaction scores. What this suggests is that the model proposed at the onset of this study may represent only a partial description of the friendship making and enhancement process.

Change scores on the positive interaction factor were also strongly and significantly related to changes in the impressions of liking conveyed by treatment children to their primary friendship targets thus providing some experimental support for the conclusion drawn from Studies 1, 2 & 3 that these behaviors do serve as important conveyors of liking and interest. Again, however, the degree of correlation was only moderate with 30.3% ( $.55^2$ ) of the variability in change for impressions of liking being shared by the positive interaction factor.

When the effects of change in impressions of liking were statistically removed or partialled out, the correlation between change in sociometric ratings and positive interaction scores was  $-.44$ . Partialling out the effects of changes in the impressions of liking conveyed by treatment children to their respective primary friendship targets eliminates the effects of the casual pathway proposed for this dissertation. Specifically, with this hypothesized pathway, positive behaviors by conveying the impression of liking and interest on the part of the child engaging in these behaviors were expected to stimulate a reciprocal response of increased liking from the recipient of this impression. When changes in socio-

metric impressions were partialled out, changes in sociometric ratings and these positive behaviors still shared 19.4% ( $.44^2$ ) of their respective variability. This represents almost exactly half of the original 38.4% of the shared variability which existed in the changes which occurred for these two variables. What this appears to suggest is that some of the influence which levels of positive behaviors seemed to have on the level of liking reported by primary friendship targets for these treatment children may have been due to social processes other than the communication of interest and liking.

### Summary and Conclusions

In this study, children who were already encountering difficulty in their relationships with their classmates were randomly assigned to one of two treatment groups. Both groups received the same social skills intervention but at different times. This training program focused on improving the relationships between the child in the social skills program and a small subset of his/her same-sex classmates. In order to generate this change, children in each treatment group received instruction regarding the importance of communicating liking and interest in others. They were then actively encouraged to direct higher frequencies of selected positive behaviors toward two primary friendship targets. The behaviors chosen for these behavioral assignments were those which Studies 1,2 and 3 suggested were likely to be effective communicators of such interest and liking.

When the effects of this intervention were analyzed, children in each of these two treatment groups experienced significant improvements in the degree to which they were liked by their two primary friendship targets. In addition, there were also significant treatment related improvements in the impressions treatment children conveyed toward their friendship targets regarding their own liking for in these targets as well as in the levels of positive behaviors which friendship targets reported treatment children to be

directing toward them. Since these improvements coincided with each treatment group's time of social skills training, it seems reasonable to attribute these gains to this social skills intervention and to those behaviors which each child in this training program was asked to direct toward these targets. Only, levels of negative behaviors directed toward such friendship targets by the children in each treatment group failed to show improvements (in this case, reductions) that coincided precisely with each groups time of intervention. This, however, may not be that surprising when one recalls that this intervention stressed encouraging children to increase the number of positive behaviors directed each week toward respective primary friendship targets. Attention was given to negative behaviors only to the extent of observing how such behaviors might undermine children's efforts to convey liking and interest and then recommending to each child that he/she avoid such negative interactions.

Treatment related changes which did occur were also considered in the light of the model proposed for this dissertation. Recalling this model, those social behaviors with a strong potential to convey interest and liking should, through the communication of such liking, facilitate friendship formation and enhancement by stimulating a reciprocal affective response from peers. When the inter-relations between treatment-related changes on each of these variables were considered this model appeared to receive reasonable support as a partial description of friendship formation and maintenance. Specifically, changes in levels in positive behaviors directed toward friendship targets by treatment children predicted an appreciable amount but not all of the change which occurred in the impressions these targets formed regarding how much treatment children liked them. This suggests that the model describing how children may develop, on the basis of behavioral clues, impressions regarding who likes them and is interested in them, may be incomplete. At a minimum, it would seem that the behaviors included on this measure tap only part of the information that children may tend to use in forming their impressions of who likes

and who doesn't like them. In addition, the relationship between changes in levels of positive behavior emitted by treatment children and changes in the sociometric ratings received by these children were also moderate. Furthermore, roughly half of the relationship between changes in levels of positive behaviors and these sociometric ratings could be accounted for by changes in the actual impressions conveyed by treatment children to these primary friendship targets.

In interpreting, this pattern of results, it might be useful to recall that this experimental paradigm involved an attempt to stimulate change in children's naturally occurring peer relationships. As such, the intervention might be viewed as a catalyst in that much of what transpired on a week-to-week basis in these targeted relationships lay outside the control of the experimenter. The fact that the intervention generated the observed treatment effects and that these changes were, in the broad sense, consistent with the model hypothesized for this dissertation suggests a certain validity for this model. Perhaps the most parsimonious conclusion for this study would be that it provides some experimental support for a conclusion that the communication of liking and interest is likely one of several inter-personal processes influencing friendship formation and that the positive behaviors identified in Studies 1, 2 and 3 can play a role in the communication of such liking and interest. However, the fact that changes in treatment children's scores on the positive factor of the behavioral communication scale accounted for only one-third of the change which occurred in peers' impressions of liking suggests that such interpersonal communication processes are likely to be more complex than simply an actual of behavioral evidence in support of an inference that the other person likes you.

Using what might be considered a fairly stringent test for the influence of the communication of interest and liking through the behaviors used in this study (the first-order partial correlation between positive behavioral scores and sociometric ratings), this communicative process accounted for 20% of the variability in the improvement which

occurred in targeted relationships. Thus, much of the change which occurred in these relationships did not appear to be explicitly accounted for by this communication process. As a result, while this intervention study does appear to provide support for the existence of a tendency to reciprocate positive feelings of liking and interest when these are directed toward oneself, the effects of this process may operate in an interactive fashion with other factors influencing friendship formation and maintenance. If the communication of interest and liking does prove to be a reliable factor in children's friendship formation and if further research can identify variables that might moderate the effects of such communication of liking and interest, coaching in the communication of these positive interpersonal feelings may provide one additional tool for use in social skills interventions designed to help children currently encountering difficulties in their peer relationships develop greater friendship making skills.

## CHAPTER TWELVE

### General Discussion and Conclusions

The first two chapters of this dissertation distinguished between friendship in childhood and the state of being generally well liked or popular in one's peer group. Based on this review, it was concluded that the ability to develop and maintain close friendships may be particularly important to development throughout childhood. If so, the goal of friendship enhancement would seem to have clinical relevance above and beyond attempting to ameliorate children's general or overall peer-group status. Furthermore, friendship-focused interventions are more likely to be successful if these are based on skills or behaviors that have been empirically demonstrated to be important to friendship formation and/or maintenance.

The research reviewed in Chapter 3 suggests that the communication of liking or an interest in friendship may help stimulate a similar affective response from the person receiving this relational communication. If this is the case, the ability to successfully convey liking may represent an important skill in the friendship making process. However, none of the research reviewed involved manipulation of this relational communication process as well as measurement of both changes in impressions of liking and concomitant changes in the feelings of the recipients' of these relational messages. As a result, it was concluded that there had not yet been a conclusive demonstration that conveying liking can stimulate a reciprocal affective response from the other child.

In order to document the impact of this communication process on relations between potential friends, the paradigm introduced by Ladd (1984) was employed. This paradigm involved first selecting children for social skills training who had a demonstrated deficit in both their peer relations and the social skill/process being studied (here the communication of liking). These children were then exposed to a training program designed to alter their behavior in respect to this communication process. Subsequent

changes in both social behavior and peers' feelings toward these children were then assessed. If this social skills intervention resulted both in changes in the impressions conveyed by children's social behavior and in peers' feelings toward these children, then experimental evidence for the functional relevance of communicating liking and interest would have been generated.

Most previous research on relational communication has focused on fairly subtle non-verbal behaviors (e.g., eye contact, body position) or such vocal behaviors as tone of voice. For several reasons this research focused on discrete, instrumental or friendly transactions occurring between children. First, it was felt that such behaviors could be reliably reported by children. Second, instrumental, prosocial behaviors would likely be important communicators of liking and interest for children since they represent an important aspect of children's conceptions and expectations regarding friendship. Finally, in the context of the planned social skills intervention, it seemed more feasible to attempt to change these fairly discrete, instrumental behaviors which were more likely to be under the volitional control of children than other, perhaps more subtle non-verbal behaviors. In contrast, studies of the impact of behaviors such as eye contact and body position have primarily employed highly trained confederates and thus did not seem ideally suited to the study of the impact of relational communication on friendship formation in children's natural peer groups. The validity of this decision, of course, depended on whether or not children do use such discrete, instrumental and/or prosocial behaviors as cues in inferring liking on the part of other children. It is to this issue that we now turn.

#### The Identification of Behavioral Communicators of Liking for Children

The first step in this process (Study 1) involved the development of a pool of items representing behaviors that would be important for children aged 9-11 in conveying liking and interest. This age group was chosen because previous research indicated that by

this age children have become fairly aware of the interpersonal significance of various behaviors and may no longer be simply responding to the immediate reinforcement value of such transactions.

In this first study, children were interviewed concerning the behavioral basis for their own impressions of who liked or disliked them in their peer group. These same children also rated a set of pre-selected behaviors in terms of the inference (of level of liking) they would likely make if a hypothetical new classmate had directed that behavior toward them. These behaviors had been identified on an apriori basis as potential conveyors of liking and/or interest in becoming friends by a panel of graduate students working in the area of children's peer relations and their supervisor.

Several interesting findings emerged from Study 1. Importantly, children at this age displayed little difficulty with these tasks and appeared to have readily accessible opinions regarding who liked them and who disliked them in their peer group. As well, each of the 34 behaviors evaluated with the hypothetical inference task led to mean inferences of liking that were significantly different from the neutral point on the scale used in this study. In the case of positive behaviors, this difference was in the direction indicating inferences of liking. For negative behaviors, this difference was in the direction indicating mean inferences of disliking. These results indicate that children at this age are able to make reliable distinctions between positive (friendly) and negative (unfriendly) feelings on the basis of discrete instrumental acts.

At the same time, not all of these 34 behaviors were spontaneously mentioned by more than 10 % of the children in this sample as having shaped their own impressions. Thus, while all of the 34 initial behaviors appear, on the basis of hypothetical inferences of liking to have the potential to convey liking or disliking, not all of these behaviors may be among the most important cues used by children of this age in judging other children's feelings toward them.

Using the frequency with which children in this sample spontaneously mentioned any behavior as having shaped their impressions, ten of the 34 initial items were retained with only relatively minor changes in the wording. Another 5 of these 34 items were combined with new but highly related behaviors spontaneously reported by children to create revised items that were broader and more inclusive than the original item. Finally, seven completely new behaviors were added to the final item pool. Since the primary purpose of considering children's spontaneous explanations of their own impressions was the identification of seven additional potential conveyors of liking that might otherwise have been overlooked, it would appear that the inclusion of children's own reports regarding how they knew who liked them represented an important facet of the item generation process.

Children mentioned many different behaviors as reasons why they felt various peers liked or disliked them. Thus, future researchers interested in the behavioral communication of liking between children should not regard this pool of 22 potential conveyors of liking as exhaustive. However, the final 22 items accounted for a large majority the behaviors/incidents mentioned by children in explaining the reasons for their impressions regarding who liked them and who did not in their peer group. Thus, the behaviors chosen for final item pool did appear, on the basis of Study 1 results, to play a greater role in shaping impressions of liking between the children in this sample using the criterion of frequency of spontaneous mention.

Several other findings in Study 1 also appear worthy of mention. First, 11 of the 13 behaviors most frequently mentioned in children's explanations of their own impressions involved positive items despite the fact that questions regarding the reasons for these impressions were equally weighted in terms of instances of liking and disliking. Furthermore, on the hypothetical inference-of-liking task, positive items led to more consistent inferences regarding classmates feelings toward them than did negative items.

This latter result suggests that negative behaviors may not always be automatically interpreted by children as indicating disliking. These results could also indicate that positive behaviors may play a more important role in relational communication among children than negative transactions. Such an interpretation is consistent with the literature on conflict and friendship (Chapter 1) which indicated that conflict and negative behaviors are not absent from children's friendships and that the key features of friendship involve prosocial behaviors such as the provision of material assistance, emotional support and intimacy as well as reliable alliance, companionship and shared activities.

Interestingly, if one categorized the 22 items selected on the basis of Study 1 interviews in terms of the characteristics associated with friendship in childhood, several of these characteristics would appear to account for most of the behaviors identified as potential communicators of liking and an interest in friendship. Three items ('lending something', 'sharing a snack or a toy', 'helping with school work') involve forms of tangible, material assistance. Another four items ('share something personal or private', 'help you when you were hurt or sad', 'talk with you' and, 'phone you') appear to be related to the provision of emotional support/intimacy. Four other items ('invite you to their house or to go somewhere with them', 'hang around with you', 'joke and goof around with you', 'ask you to play') fall within shared activities and interests.

These 22 final behaviors would also appear to provide some support for Parker and Gottman's (1989) argument that, at this age, inclusion and exclusion in the peer social network, reliable alliance and loyalty are important concerns of children. Specifically, five items ('exclude', 'ignore', 'stick up for you', 'pick you for their team or as a partner', 'stand/sit beside you') all appear to bear some relationship to issues of exclusion-inclusion.

None of the final items appear to be directly related to the friendship characteristics of proximity, similarity, trust, or reciprocity. Thus, though friends in childhood have been found to be fairly similar on many variables, to often live in the same neighborhoods,

to trust each other more and to expect similar treatment from each other, children in this sample did not appear to use these characteristics as cues regarding other children's feelings toward them, at least consciously. Rather, they appeared to emphasize willingness to provide material and emotional support, to engage in shared activities as well as the demonstration of social preference.

Gender differences in the behaviors used to infer liking and interest were also considered in Study 1. Generally, both boys and girls were very similar in terms of the relative frequency with which they spontaneously mentioned various behaviors as having shaped their impressions regarding who liked them. For only four behaviors was there a difference of more than 5 ranks in an ordering based of the relative frequency of mention of that item for boys for girls. Specifically, these differences in ranking indicate that girls placed greater relative emphasis on the sharing of something personal or private when inferring liking while boys appeared to place greater (relative) emphasis on joking and goofing around as well as the presence/absence of physical aggression. Other than these differences, the patterns of frequency of spontaneous mention for both groups were very similar and would appear to support a tentative decision to develop a single Behavioral Communicators of Liking Scale for use with both boys and girls. This assumption that boys and girls will attend to similar behaviors and draw similar inferences regarding classmates liking for them was verified in Study 2.

In treating the results of these interviews as evidence for the communicative relevance of each of the 22 behaviors identified in Study 1, several limitations in the design of this study should be kept in mind. First, children were reporting retrospectively on how their current impressions were formed and the resultant data reflect children's conscious understanding of their impression formation. This understanding may not correspond completely with the actual manner in which such relational communication occurs at this age. Second, the resultant data may be age-specific and reflect only behaviors that may be

important for conveying liking at this age. Generalization of results to other ages may not be justified and would require further study.

Another limitation in this study involves the coding system used to analyze interview responses. This coding began with the 34 behavior categories generated by the adult panel. New coding categories were added as responses were encountered which did not fit any previous category. This provision for the development of new coding categories was viewed as essential since the purpose of these interviews was to ensure that no behaviors potentially relevant to the communication of liking were overlooked. In order to ensure that all three coders approached each new coding decision with the same set of categories, it was necessary employ a step-like coding process in which consensual resolution of any initial coding disagreements were resolved before each judge independently coded the next response in that interview protocol. The percentage of initial (independent) agreements in the coding decisions made by any two judges ranged from .82 to .87.

This initial agreement rate suggests that coding decisions were not highly dependent on coder. However, the provision for the addition of new behavior categories opens the possibility that a slightly different set of behavior categories might have emerged if the interview protocols had been coded in a different order. Nonetheless, since the initial items were used as coding categories from the onset of the coding of interview protocols, and since high frequency (defined as behaviors mentioned by at least 20% of these children), but previously overlooked behaviors were generally encountered in the first few protocols, it seems unlikely that any frequently-mentioned behavior was overlooked in this coding process especially given the inter-judge agreement rates for this coding.

### Validation of the Communicative Function of Selected Friendly Behaviors

Twelve of the behaviors included in the final set of items in Study 1 represented either enlarged behavior categories or completely new behaviors. As a result, children in that study did not rate these behaviors on the hypothetical inference of liking task included in Study 1. Thus, additional research (Studies 2 and 3) was necessary to confirm the communicative potential of these behaviors. In Study 2 this was achieved by having another sample of grade-5 children read a series of hypothetical vignettes. Each of these vignettes was based on a single behavior taken from the set of 22 behaviors identified as potential communicators of liking in Study 1. This behavior, its opposite, plus a neutral incident provided the evidence available to children for inferring level of liking between characters in that vignette.

Two forms of vignette structure were used in Study 2. In single-agent vignettes, the same character directed different behaviors to each of the other three characters in that vignette. In three-agent vignettes, the focal character was the recipient of these behaviors from the other three characters. Choice of vignette structure was made primarily on the basis of the need to create as simple a vignette as possible. The fact that each behavior of interest was presented within only one type of vignette (single- or three-agent) led to the possibility that the assessment of communicative potency for any critical behavior (in terms of strength of mean inference) may have been influenced by the type of vignette used with that behavior. In order to assess this possibility, mean inference scores associated with each type of vignette structure were compared. No significant differences were found between the mean inference of liking associated with all positive behaviors presented in single-agent formats and the mean inference of liking for all positive behaviors presented in three-agent vignettes. Similarly, no significant differences were found between the mean inference of disliking associated with all negative behaviors embedded in single-agent vignettes and the mean inference of disliking associated with

those negative behaviors presented in three-agent vignettes. Considering these results, it does not appear that vignette structure influenced the pattern of results in this study.

A more serious limitation in Study 2 is that the order of presentation for any vignette and the behavior whose communicative potential was being appraised were partially confounded. Although four different vignettes shared the same ordinal position, each behavior was embedded in only one vignette whose ordinal position in the presentation sequence did not vary. Analyses conducted for Study 2 indicate that a small but reliable order effect occurred accounting for 1 to 4% of the variability in inference-of-liking scores depending on whether inferences associated with positive or negative behaviors were being considered. Relative to the overall main effect for type of behavior which accounted for between 69 and 96% of the variability in inference scores within any vignette, this main effect for order appeared to be fairly small. Still, given the presence of this order effect, a more unequivocal assessment of the communicative potency of each behavior would have been generated if a counter-balanced latin-square design had been used to vary the order of presentation for any given vignette. Any future investigation of the communicative potency of different behaviors employing hypothetical vignettes would therefore benefit from the inclusion of this design feature.

At the same time, the results of Study 2 appear to support the selection of these behaviors as potential conveyors of liking and interest. All of these 22 behaviors led to mean inferences of liking that were significantly different from the neutral point on the rating scales provided even when a stringent per comparison alpha criterion was used. Considering the direction of these inferences, the 16 positive behaviors selected from Study 1 all led to strong inferences of liking while the 6 negative behaviors each led to strong inferences of disliking. The mean inference of (dis)liking associated with each of these 22 critical behaviors was also significantly different from the mean inference based on the opposite behavior included in that same vignette. Importantly, both behaviors in

any pair were embedded in the same vignette and, thus, shared the same ordinal position in the vignette presentation sequence. These differences, therefore cannot be attributed to any order effect.

Several other results of this study also appear to be of some importance in understanding the communicative function of these behaviors. First, in 18 of the 21 vignettes, the negative behavior/incident led to greater variability in inferences of (dis)liking than did the positive behavior in the same vignette. In 12 of these 18 instances this difference in variability was significant using a standard F-test for differences in sample variances. This result might be interpreted as indicating that children more consistently inferred liking from positive behaviors than they inferred disliking on the basis of negative behaviors. If so, this result would be consistent with research cited in Chapters 1 and 4 suggesting that conflict need not necessarily indicate the absence of friendship or the presence of high levels of disliking. This result is also consistent with the results of Study 1. In that study, the inferences children reported in response to positive behaviors were generally stronger and more consistent than when this hypothetical incident involved a negative behavior.

Only one gender difference was found in the inferences boys and girls drew in response to the critical behaviors embedded in each of these vignettes. Furthermore, the probability of obtaining at least one such statistically significant difference across these 22 behaviors when no gender differences existed in the populations represented by this sample would be .68. These results indicate that both boys and girls in this sample drew similar inferences regarding levels of liking from these 22 behaviors. This provides further support for the conclusion drawn on the basis of the results of Study 1 that it might be valid to incorporate a single set of behavioral items into a Behavioral Communicators of Liking Scale for use with both boys and girls.

Finally, a fairly high level of consistency in the relative communicative relevance of each of these 22 behaviors was found in Studies 1 and 2 such that the behaviors that

tended to be most frequently mentioned by children in explaining their own impressions in Study 1 were also those which tended to result in stronger inferences of (dis)liking in a hypothetical context (the vignette) in Study 2. The fact that children drew similar inferences regarding level of liking in vignettes based on the same behaviors other children used to explain their current impressions regarding who liked and who disliked them in their peer groups suggests that these behaviors do function as relational communicators. However, this vignette task may have had strong demand characteristics since the only evidence available to children for use in inferring level of liking between characters were the behaviors embedded in that vignette. Thus, while vignettes have been used in other studies of friendship, (e.g., Bukowski & Kramer, 1986), the results of Study 2 should be interpreted with caution. They appear to indicate that children at this age can use these behaviors to infer level of liking. However, these results do not address the issue of whether children actually use these behaviors to infer liking in their own social environments. Further support for this conclusion was still felt to be important and was sought in Study 3 and 4.

Thus, the goal of the third study presented in this dissertation was to confirm the relationship between the frequency of occurrence of each of these 22 behaviors and the actual impressions children reported regarding how much classmates liked them. Results indicate that the scores any child received on this scale from any peer were very strongly correlated with the impression that peer had regarding whether or not this first child liked him/her. Since the correlation between these peer impressions of liking and scores on another comparison peer-report measure (The Minnesota Revised Class Play) were much lower, the correlation between behavioral communication scores and peer impressions would not appear to have been simply the result of shared method variance. Thus, the association between behavioral communication scores and actual peer impressions would appear to provide further evidence that these behaviors are in fact important conveyors of

liking at this age.

Evaluation of the Behavioral Communicators of Liking Scale as a Measure of Behavioral Communication of Liking Among Children

A second purpose of Study 3 was the assessment of the psychometric properties of the Behavioral Communicators of Liking Scale. This scale incorporated 22 items each measuring frequency of occurrence for one of the behaviors identified as a potential conveyor of liking and employed the scaling format proposed in chapter 5 for such a peer-report measure. When the factor structure of the Behavioral Communicators of Liking Scale was evaluated, a highly consistent structure emerged regardless of whether the data involved ratings made by boys or girls of their same-sex peers, or whether unaggregated, dyad-specific raw scores or single aggregated mean scores were used for any child. In addition, type of factor rotation had little impact on the factor structure that emerged in these analyses. On this scale, two factors, one containing only positive behaviors and the other containing only negative items emerged. Collectively, these two factors accounted for between 53 and 67% of the variance (depending on the analysis conducted) in scores children received across the 22 items on this scale. Cross-loadings across these two factors were generally low and the internal consistency, especially for the positive behavior factor, was very high. Confidence in the validity of this structural analysis was enhanced by the consistency of these psychometric findings regardless of the type of data considered. In addition, confirmatory factor analyses of the Class Play revealed a factor structure that was identical to that reported by the developers of this measure suggesting that the sample of children used in Study 3 was likely fairly typical.

Generally, the psychometric properties of the positive behavior factor on the Behavioral Communicators of Liking Scale were superior to those of the negative factor. Not only was the internal consistency of the positive factor higher, it also had higher

test-retest reliability, predictive and concurrent/construct validity. There are two different possible reasons for this. The first would be that this negative factor, based as it is on fewer items, is simply more prone to measurement error and hence less reliable. However, it might also be the case that the negative factor provides adequate measurement of negative social transactions but that these transactions are more variable over time and less consistently related to any one type of relationship. If so, negative factor scores might be expected to be less strongly related to children's impressions regarding other peers' feelings toward them.

Some evidence for this latter possibility was found in Study 3. For one thing, the psychometric properties of the negative behavior factor on this scale compared favorably to the somewhat analogous negative factors on the Class Play. In addition, scores on the negative factor of the behavioral communication scale were more highly related to peers' impressions than were either the positive or negative factors on the Class Play. These results suggest that the lower correlation between negative behavioral communication factor scores and peers' impressions, compared to that involving between positive behavioral communication scores and this criterion, may not reflect unreliable measurement but rather that such negative behaviors may simply play a less consistent role in the communication of liking and/or an interest in becoming friends. Interpreted this way, these results would be consistent with the tentative conclusion drawn from the results of Studies 1 and 2 that it is positive or friendly social transactions rather than instances of conflict which serve as primary cues regarding level of liking of another child. However, further development of the negative behavioral communication factor would seem essential if such an interpretation is to be more rigorously tested. In its present form, it would appear that while both the positive and negative factors on the Behavioral Communicators of Liking Scale possessed adequate psychometric properties for use as an outcome measure in the final study (#4), the positive factor appears to be psychometrically superior to the one

based on negative social transactions.

#### Demonstration of the Relational Impact of Communicating Liking

A review of the possible functions of these friendly, prosocial behaviors (Chapter 3) identified at least three different ways such behaviors might influence the development of children's friendships. First, such behavior may be positively reinforcing and thus encourage continued interaction. Second, through a norm of reciprocity, the emission of friendly behaviors may place an sense of 'obligation' on the other child to respond in kind, thus helping to establish an escalating cycle of friendly interactions. Finally, it was proposed that such behaviors may be important because they serve to convey feelings regarding the other person. Although Study 3 involved no manipulation of this communication process, the pattern of inter-correlations between measures used in this study appeared to provide some non-experimental support for this latter function.

First, there was a strong level of association between scores on the positive behavioral communication factor and peer sociometric ratings as well as a moderate association between scores on the negative behavioral communication factor and these same sociometric ratings. Furthermore, the majority of the relationship between children's behavioral communication scores and other peers' level of liking for them could be accounted for by the interpersonal process of interest in this dissertation; that is, that these behaviors, in communicating liking and perhaps an interest in becoming friends serve to stimulate a reciprocal affective response. Thus, these results appear to support a conclusion that the behaviors included on the Behavioral Communicators of Liking Scale are socially relevant and that an appreciable portion of the relational impact of these behaviors may be due to their ability to convey relational information. The results of Study 3 also suggest that a small but significant proportion of the relationship between any child's

scores on the Behavioral Communicators of Liking Scale and peers' level of liking for this child were not related to the impressions these peers had regarding this child's level of liking. This result appears to support the attribution of multiple social functions to these behaviors.

Perhaps the primary limitation in Study 3, in terms of investigating the impact of the communication of liking between children is that no manipulation of any variable of interest was involved. Thus, though the data appear to be consistent with the proposed model for the importance of communicating liking, no causal inferences can be made on the basis of this study alone. For this reason, the last study in this dissertation (#4) involved an attempt to experimentally manipulate relational communication by having children enrolled in a social skills program direct behaviors believed to be potent conveyors of liking toward selected friendship targets. At the time of enrollment in this training program, these children had been experiencing generally poor peer relations, had very few friends and were not currently engaging in high levels of these communicative behaviors. Evaluation of training outcomes focused on changes in the relationships between treatment children and these selected friendship targets. Outcome measures included the frequency with which treatment children directed behaviors included on the Behavioral Communicators of Liking Scale toward their peer friendship targets, these peers' impressions regarding how much that treatment child liked them as well as a measure of how much friendship targets liked these children.

There were significant treatment-related improvements in how much friendship targets liked the children in both treatment groups (initial and wait-listed). In addition, a significant treatment-related change in these friendship targets' impressions of how much treatment children liked them was found for the first treatment group. A similar treatment-related change was found for the wait-listed control group as well. This change, however, just failed to meet the criterion for statistical significance. Finally, a significant

treatment-related change was found for the ratings children in the first treatment group received from their friendship targets on the positive behavioral communication factor. A similar treatment-related change occurred in the positive behavioral communication scores of the second treatment group. Again, however, this change for the second treatment group just failed to meet the criterion set for statistical significance. No changes even remotely approaching significance were found for either treatment group on any of the above outcome measures during the periods when these children were not actively engaged in the social skills program. There were also no treatment-related changes in negative behavioral communication scores received from friendship targets for either treatment groups. This latter finding is not entirely surprising given that changing levels of negative behaviors was not the focus of this intervention. Finally, the above pattern of results was not qualified by gender or by social skills trainer.

Considering this pattern of results, it would appear that having children direct behaviors believed to have the potential to convey liking and an interest in becoming friends led to changes in both peers' impressions regarding how much these children liked them as well as changes in how much these peers liked the children directing these behaviors. Furthermore, changes in the levels of positive behavioral communicators of liking were strongly predictive of changes in the level of liking reported by these friendship targets. Thus, the results of this study would appear to provide some experimental support for the hypothesized role for the communication of liking in the development of closer interpersonal relationships.

At the same time, only one-third of the variability in changes in peers' levels of liking could be accounted for by changes in these peers' impressions regarding treatment children's level of liking for them. This result would appear to confirm the expectation that the communication of liking and interest is not the only factor influencing levels of liking between children. In addition, roughly half of the relationship (in terms of shared

variability) between changes in behavioral communication and peer sociometric ratings could not be accounted for by changes in peers' impressions. As noted earlier, it was expected that the behaviors identified as potential conveyors of liking might be important relationship enhancers for other reasons beside their ability to convey relational information. Thus, though the results of this study appear to support the argument that relational communication may be important in children's peer relationships, these results also appear to indicate that the social functions of such friendly behaviors may be fairly complex. Further investigation would appear important for further clarifying the different possible roles of these friendly behaviors as well as when and how relational communication may facilitate friendship formation in childhood.

The strength of using an intervention design such as the one employed in Study 4 would seem to be that it involves real peer relationships within their natural context. However, such interventions are generally unable to completely control events outside the intervention sessions and inside the peer group (Foster et al, 1986). As a result, any observed treatment-related changes in the quality of peer relations may be due to unintended factors. For this reason, it was important to ensure that not only did treatment children's relationships improve but also that these relationship outcomes coincided with treatment-related changes in the skills/behaviors of interest (Ladd, 1984). In addition, Foster et al (1986) suggest that the evaluation the social or relational function of different behaviors and skills may be enhanced through the use of a variety of research techniques including children's own reports and patterns of correlations in conjunction with intervention studies. Both of these paradigms were employed in this dissertation (Studies 1 and 3), and the results of these studies were consistent with those in Study 4.

A second possible limitation in Study 4 was the reliance on peer-report measures for all outcome data. Though the decision to use such measures was based on the appraisal that peers most likely represented the best source for the desired information

(see chapter 5), reliance on this one information source introduces the possibility of systematic biases in reporting that could influence the observed pattern of results. The inclusion of the Class Play as a comparison peer-report measure permitted assessment of the degree to which intercorrelations between various outcome measures may have been inflated by shared method variance. Analyses reported in Study 3 suggest that this was not the case and that the Behavioral Communicators of Liking Scale possessed both convergent and discriminant validity. Still, it would seem useful to also study the impact of the communication of liking using a more tightly controlled experimental setting and, if possible, direct observation of behaviors. While such a design would lose the advantage of natural context, it would serve to complement and hopefully confirm the findings of this study.

Another consideration in interpreting the results of Study 4 as supporting the importance of the communicating liking between children to friendship development is that, as noted in Chapter 1, friendship is denoted by the presence of strong mutual liking as well as a variety of other characteristic (e.g., the presence of emotional and tangible support, shared activities etc.). The changes stimulated by this intervention in the amount friendship targets liked treatment children, while reasonable consistent, were generally not so large that they indicate the development of very close friendships even if one applied only the criterion of strong mutual preference. Realistically, it may prove very difficult to change previously negative relationships to close friendships even within a much longer-term intervention than the ten-week intervention used in Study 4. In this context, it might prove useful to replicate this study with a group of children whose peer-related social difficulties are less extreme. These children might be directed to communicate interest and liking toward selected peers who, while not currently close friends, are less negatively predisposed toward this child than was generally the case in Study 4.

In fact, using a less extreme group may have the further advantage of reducing a

possible interpretive bias that might have existed for friendship targets in this study which, if it did exist would have worked against the successful communication of liking and interest. As noted in Chapter 3, current relational context appears to influence the inferences people are likely to draw concerning the relational significance of various behaviors. In other words, children may be more likely to infer liking on the basis of positive behaviors from peers with whom they have had a prior history of reasonably positive interaction than when such behaviors are coming from a previously highly disliked peer. In the context of this study, many of these children selected for social skills training usually had to select as friendship targets classmates with whom they currently did not get along because they were generally highly disliked by most classmates. This would have made the task of conveying liking and interest to these friendship targets fairly difficult. The results of this study do indicate, however, that even when this was the case, taking the time to communicate liking and an interest in friendship resulted in improvements in these relationships. Whether this represents a genuine first step in the friendship formation process requires further study.

In such a future study, measurement of other aspects of the friendship relationship beside level of mutual preference/liking would be important. Though the Behavioral Communicators of Liking Scale includes many behaviors that have been found to be associated with friendship in childhood, it would seem important to include another measure to assess quality of friendship especially if the friendship making strategy employed, as did Study 4, encouraging children to engage in these behaviors. What this study does seem to indicate is that the communication of liking, as measured by the Behavioral Communication of Liking Scale and the Peers' Impressions Scale, did influence the degree to which friendship targets liked these children and thus led to an improvement in the affective tone of the relationship. Considering that Gottman (1983) found that the ability of two children to establish and maintain an affective state of amity in their interaction

represented an important factor differentiating between children who hit it off and children who did not, it would seem likely that the shifts in liking generated by this intervention may represent an important first step in the friendship formation process.

Perhaps the communication of liking may be best seen in terms the sending of a signal analogous to a 'welcome mat' which lets the other child know that the opportunity for closer friendship exists if she/he wishes to take advantage of it. It might also be the case that knowing that another person wishes to be friends may reduce the anxiety and/or the fear of rejection, making it easier to make friendly overtures in return. Certainly, this interpretation is consistent with the findings of Rabiner and Coie (1989) who manipulated the impression (expectation) rejected children had regarding how much classmates liked them and found that, as a result, rejected children were more willing to risk prosocial overtures and social engagement with their peers. Finally, the studies conducted for this dissertation do not address the issue of why relational communication might influence friendship formation. Rather, this research would seem to provide some support for the argument that such communication may represent an interpersonal process deserving further investigation because, in stimulating reciprocal responses of increased liking, this communication may represent an important factor in friendship formation and friendship maintenance in childhood.

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APPENDIX A

Mean Hypothetical Inferences of Liking  
By Gender (Study 1)

Item	Boys <sup>1</sup>	Girls <sup>2</sup>	Tscore <sup>3</sup>	Prob <sup>4</sup>
i1 lend you something you needed	2.26	2.11	.72	.47
i2 laugh at you when you made a mistake	5.57	5.66	-.36	.72
i3 physically hurt you	6.67	6.57	.53	.60
i4 share a snack or a toy with you	1.90	1.83	.40	.69
i5 told you to get lost	6.00	5.89	.51	.61
i6 told you a secret about themselves	2.20	1.86	1.30	.20
i7 gave you some advice on how to solve a problem	2.30	1.80	2.26	.03
i8 picked you for their team or classroom activity group	1.83	1.80	.16	.87
i9 bragged about how much better they were than you	5.47	5.49	-.07	.95
i10 told you a secret about about someone else	3.10	2.66	1.76	.08
i11 share some important news with you	2.07	1.77	1.26	.21
i12 defended you when someone was giving you a hard time	1.33	1.46	-.73	.47

Appendix A (cont.)

Item	Boys <sup>1</sup>	Girls <sup>2</sup>	Tscore <sup>3</sup>	Prob <sup>4</sup>
i13 asked you for your opinion or help	2.13	1.89	1.18	.24
i14 told you they liked your work	1.87	2.11	-1.18	.24
i15 came up to you and said hi	2.83	3.11	-1.11	.27
i16 called you names or teased you	5.90	5.97	-.25	.80
i17 asked about how you were when you were hurt or sad	2.23	2.03	.75	.46
i18 wouldn't let you join in a game or activity	5.70	5.43	.97	.33
i20 said something nice about you	1.90	1.94	-.20	.84
i20 weren't interested in what you had to say	5.43	5.06	1.26	.21
i21 paid attention to what you were saying	1.93	1.77	.78	.44
i22 started talking to you	2.53	2.37	.76	.45
i23 asked if you would like to go somewhere with them after school	1.63	1.34	1.73	.09
i24 tattled on you	5.63	5.40	.92	.36
i25 told you they were glad they were your friend	1.40	1.26	.93	.36
i26 phoned to talk to you at home	1.87	1.57	1.57	.12
i27 refused to help you or lend you something when you needed it	5.46	5.51	-.18	.86

Appendix A (cont.)

Item	Boys <sup>1</sup>	Girls <sup>2</sup>	Tscore <sup>3</sup>	Prob <sup>4</sup>
i28 cheered for you or encouraged you	1.70	1.57	.68	.50
i29 ask how you were doing doing	2.27	2.40	-.59	.59
i30 talked to you about something that happened in class	2.50	2.46	.16	.88
i31 stood or sat down beside you	2.43	2.17	1.08	.29
i32 smiled at you and were cheerful	1.97	1.91	.25	.80
i33 explained to you something you wanted to know	2.17	1.97	.93	.36
i34 asked you if you'd like to play with them	1.40	1.43	-.20	.85

- Note
- <sup>1</sup> mean affective inference rating all boys
  - <sup>2</sup> mean affective inference all girls
  - <sup>3</sup> T-value based on t-test between gender groups
  - <sup>4</sup> two-tailed probabilities for these t-tests

## APPENDIX B

### Study 2 Vignettes

Below are the vignettes used in Study 2. The actual format used to present these has been reproduced in Chapter 9 where the results of this study are discussed.

#### FORM 1 VIGNETTES

- 1) Jonathan's class was going on a picnic. The teacher put Jonathan, and Trevor in the same group. During the picnic, Jonathan was mean to Trevor. At the same time, Jonathan was nice to Sam who was also in his group. After the lunch was over, Jonathan noticed that Alex was finishing up at the same time as him. (Characters in vignette read by girls were named Rosanne, Tanya, Robin and Nichola).
- 2) One day, Natasha forgot her lunch at home. By lunchtime, she was very hungry. When Natasha told Heidi about her problem, Heidi gave her an apple and some cookies. However, when Natasha told Christina, Christina did not want to share any of her lunch with her. After lunch, Julie brought around the waste-paper basket. She stopped at each classmate's desk, including Natasha's. (Characters in vignette read by boys were named Fred, Brent, Thomas and Eric).
- 3) One afternoon, John forgot his pens and could not do his Math. He asked Bobby if he could use one of his pens but Bobby said "no". John then went and asked Tim. Tim said "sure" and lent John a pen. After John had finished his math, the class went outside and played scooter ball for gym. The teacher put him on the same team as Alex. (Characters in vignette read by girls were named Maria, Jessica, Alice and Samantha).
- 4) One day, Kim brought the doll's crib she had made to school to show her class. When Christa saw it, she started to tease Kim and told her that her crib looked stupid. Hillary disagreed and told Kim that she thought that Kim had done a pretty good job building the crib. While Kim and Hillary were talking, Diane walked by and looked at the crib. (Characters in vignette read by boys were named Ryan, Chris, Eric and Paul).
- 5) When Michael saw several of his classmates playing catch, he went up to them and asked if he could join them. Stephen wanted to let Michael play. However, Tim didn't want Michael to play. As a result, Stephen and Tim started arguing about whether or not Michael could play. Meanwhile, Jamie practiced throwing the ball in the air and catching it himself. (Characters in vignette read by girls were named Janice, Elizabeth, Lee Ann and Tina).
- 6) After recess, Sandra ran up and stood in line at the school door. When Gillian saw Sandra, in line, she went up and stood beside her. When Paula saw Sandra, however, she went to the opposite end of the line. Linda didn't stand in line at all because it was her turn to hold the door for her classmates. (Characters in vignette read by boys were named Patrick, David, Peter and Sam).

### FORM 2 VIGNETTES

1) Jonathan's class was going on a picnic. The teacher put Jonathan, and Trevor in the same group. During the picnic, Jonathan was mean to Trevor. At the same time, Jonathan was nice to Sam who was also in his group. After the lunch was over, Jonathan noticed that Alex was finishing up at the same time as him. (Characters in vignette read by girls were named Rosanne, Tanya, Robin and Nichola).

2) One day during recess, Caryn slipped and scraped her knee on the pavement. Both Tara and Elise saw Caryn fall. However, only Tara went over to help Caryn. Elise kept on playing. After Caryn's knee had been bandaged by the school nurse, she returned to her class. Her teacher then put her in the same work group as Melissa. (Characters in vignette read by boys were named Jason, Todd, Chris and Andrew).

3) Just before recess, Stephen went up to Jeremy and asked him if he'd like to play with him. Jeremy said "sure" and asked Stephen if Billy could play too. Stephen told Jeremy that he didn't want to play with Billy. Jeremy said "alright" and got ready to go outside. On the way out, they passed Ricky who had to stay inside because he had a cold. (Characters in vignette read by girls were named Rhonda, Sandra, Cindy and Maria).

4) One evening, Katie decided that she wanted to call one of her classmates on the phone. She decided to call Amanda. While they were talking, Amanda asked Katie if she knew Lori's number. Katie said "no" because she had never called Lori up. After Katie had finished talking to Amanda, she went down to the corner variety store. While there, she saw Jocelyn. (Characters in vignette read by boys were named Derek, John, George and Tim).

5) Richard and several other boys were playing baseball during recess. Richard did not want to be the first to be in the outfield. He asked Keith if he would play the outfield first. Keith said "no" and started bossing Richard around, telling him that it was his turn. Richard then asked Ross if he would play outfield. Ross said "OK", so Richard was able to go up to bat. Several other boys, including Mark, watched. (Characters in vignette read by girls were named Jennifer, Andrea, Rebecca and Jo-Anne).

6) One day Corey got into an argument with a girl in a higher grade who started calling Corey mean names. Three of Corey's classmates, Kelly, Tracey and Paula, were nearby. When they saw the fight, they came over. Tracey started cheering for the older girl but Kelly told the bigger girl to pick on someone nearer to her own size and that Corey hadn't done anything wrong. Paula didn't say anything (Characters in vignette read by boys were named Jamie, Billy, Mark and Kevin).

### FORM 3 VIGNETTES

1) Rosanne's class was going on a picnic. The teacher put Rosanne and Tanya in the same group. During the picnic, Rosanne was mean to Tanya. At the same time, Rosanne was nice to Robin who was also in her group. After the lunch was over, Rosanne noticed that Nichola was finishing up at the same time as her. (Characters in vignette read by boys were named Jonathan, Trevor, Sam and Alex).

2) One day the teacher asked Paul to pick either Matthew or Neil to help him prepare a news program for the class. Paul picked Matthew instead of Neil. The rest of the class, including Steve, then had to make up some news stories for Matthew and Paul to read on their news program. (Characters in vignette read by girls were named Susan, Janice, Samantha and Barbara).

3) One day, Karen wanted to invite some classmates over to her house to play after school. Her mother said "OK". When she got to school that morning, she invited Robin and two other girls over. She did not ask Jane. While on the way home, Karen saw another girl, Caroline, who was also from her class. (Characters in vignette read by boys were named Jamie, Billy, Albert, Trevor).

4) As the class stood in line after recess, several of the boys started pushing. John pushed David as hard as he could and tripped him onto the pavement. However, when Michael got in his way, John was much more careful to make sure that he did not hurt Michael. Eric did not get involved in the pushing. Instead, he stood at the edge of the line. (Characters in vignette read by girls were named Jessica, Danielle, Sally and Brenda).

5) When Sonia got a special present from her uncle, she was very excited and wanted to tell Carole all about it. However, when Sonia got to school, Carole was with Linda. Sonia did not want to tell Linda, so she waited until Carole was alone before telling her. When Sonia had finished telling Carole, the teacher asked Sonia and Joan to bring the movie projector down to the storeroom. (Characters in vignette read by boys were named Tommy, Sam, Roger and George).

6) Sean, Andrew, Ryan, and Timothy were eating their lunches in the school cafeteria. Sean and Andrew were telling each other jokes and laughing. Ryan thought that their jokes were stupid and told Andrew to stop or he could get in trouble. Timothy just sat there listening and didn't say anything. (Characters in vignette read by girls were named Allison, Shelly, Erin and Alexis).

#### FORM 4 VIGNETTES

1) Rosanne's class was going on a picnic. The teacher put Rosanne and Tanya in the same group. During the picnic, Rosanne was mean to Tanya. At the same time, Rosanne was nice to Robin who was also in her group. After the lunch was over, Rosanne noticed that Nichola was finishing up at the same time as her. (Characters in vignette read by boys were named Jonathan, Trevor, Sam and Alex).

2) One day, the teacher made Danny, Bobby, Thomas and Keith stay in for recess. Bobby and Danny spent the whole recess talking together. Thomas didn't say anything to Danny even though his desk was in the same row. Keith's desk was too far away for him to talk with any of the other boys. (Characters in vignette read by girls were named Janice, Amber, Louisa and Barb).

3) Janice was having a hard time solving the math problems that her teacher had given her for homework. When she asked Allison if she would help her, Allison said "no". Fortunately, Lise offered to help Janice so she was able to finish her work. The next day, the teacher asked Samantha to collect the Math assignments. Samantha then collected everyone's work including Janice's. (Characters in vignette read by boys were named Joseph, Derek, Gary and Trevor).

4) Jeffrey wanted to organize a ball game at recess so he decided to see if anyone was interested. When he went to talk to Alex, Alex acted as if he hadn't heard Jeffrey and walked away. Jeffrey then went over to talk to Kevin who listened closely to what Jeffrey had to say. Eventually, enough boys were interested to form two teams. After the game was started, Thomas came up and asked some of the boys if he could play. (Characters in vignette read by girls were named Brook, Sandy, Tina and Lesley).

5) When Jocelyn got to school she put her books on her desk and went back outside. There, she saw Kassy and Melissa in different parts of the play ground. Jocelyn went over to where Melissa was and they hung around with each other until the bell rang. She did not hang around with Kassy. Instead, Kassy played with Louisa who was also in their class. When the bell rang, Jocelyn, Melissa, Kassy and Louisa got into their line and waited for their teacher. (Characters in vignette read by boys were named Robert, Pierre, Frank and Troy).

6) When Mike got to school, he saw David sitting on the stairs. Mike smiled at David and said "hi" cheerfully. Later, Mike saw Carl bouncing a ball against the wall. As Mike walked by Carl, he neither smiled nor was cheerful. Then the bell rang. Mike went inside and hung his coat beside Ian's. (Characters in vignette read by girls were named Donna, Susan, Margot and Tanya).

## APPENDIX C

### Measures Used in Study 3

#### Minnesota Revision of the Class-Play

#### Example Items

Pretend that you are a director of a play starring the students in this classroom. The director of a play has to do many things but the most important job is to select the right people to act in the play. So, your job is to choose students who could play each part or role best. Try to pick students who seem to fit each part in real life.

A person is  
a good leader

A person who gets  
into a lot of fights.

Robert G.	Colin	*	Robert G.	Colin
Lisa	Brook	*	Lisa	Brook
Shannon	Kevin	*	Shannon	Kevin
Terri	Jocelyn	*	Terri	Jocelyn
Ron	Alison	*	Ron	Alison
Michelle	Robert N.	*	Michelle	Robert N.
Janice	Danielle	*	Janice	Danielle

The following are the rest of the class play items in the order administered:

- 3) Would rather play alone than with others
- 4) Has good ideas for things to do
- 5) Loses their temper easily
- 6) Shows off a lot
- 7) Is someone you can trust
- 8) Interrupts when other children are speaking
- 9) Has many friends
- 10) Will wait their turn
- 11) Whose feelings get hurt easily
- 12) Everyone listens to
- 13) Plays fair
- 14) Has trouble making friends

- 15) Acts like a little kid
- 16) Has a good sense of humour
- 17) Can't get others to listen
- 18) Is very shy
- 19) Is polite
- 20) Makes new friends easily
- 21) Is too bossy
- 22) Is often left out
- 23) Helps other people when they need it
- 24) Is usually sad
- 25) Everyone likes to be with
- 26) Can get things going
- 27) Teases other children too much
- 28) Is usually happy
- 29) Picks on other kids
- 30) Likes to play with others rather than alone

Measures Used in Study 3 (cont.)

Sociometric Rating Scale

Name..... Grade.... Teacher.....

How much do you like to be with each of the following classmates?

	Always like to be with	Almost all the time	Most of the time	Half the time	Not much of the time	Hardly ever	Never like to be with
Robert G.	1	2	3	4	5	6	7
Colin	1	2	3	4	5	6	7
Michelle	1	2	3	4	5	6	7
Robert N.	1	2	3	4	5	6	7
Lisa	1	2	3	4	5	6	7
Brook	1	2	3	4	5	6	7
Danielle	1	2	3	4	5	6	7
Janice	1	2	3	4	5	6	7
Shannon	1	2	3	4	5	6	7
Kevin	1	2	3	4	5	6	7
Jocelyn	1	2	3	4	5	6	7
	Always like to be with	Almost all the time	Most of the time	Half the time	Not much of the time	Hardly ever	Never like to be with

Measures used in Study 3 (cont.)

Peer Impressions of Liking Scale

Name..... Grade.... Teacher.....

How much do you think each of your classmates likes to be with you?

	Always like to be with	Almost all the time	Most of the time	Half the time	Not much of the time	Hardly ever	Never like to be with
Robert G.	1	2	3	4	5	6	7
Colin	1	2	3	4	5	6	7
Michelle	1	2	3	4	5	6	7
Robert N.	1	2	3	4	5	6	7
Lisa	1	2	3	4	5	6	7
Brook	1	2	3	4	5	6	7
Danielle	1	2	3	4	5	6	7
Janice	1	2	3	4	5	6	7
Shannon	1	2	3	4	5	6	7
Kevin	1	2	3	4	5	6	7
Jocelyn	1	2	3	4	5	6	7
	Always like to be with	Almost all the time	Most of the time	Half the time	Not much of the time	Hardly ever	Never like to be with

Measures Used in Study 3 (cont.)

Behavioral Communicators of Liking Scale Scale

<u>Example Item</u>								
IN THE LAST MONTH HOW OFTEN DID EACH CLASSMATE								
lend you something when you needed it.								
	Never	Once or twice	More than twice		Never	Once or twice	More than twice	
	*****				*****			
Timothy A.	1	2	3	Nancy Lynn	1	2	3	
Patricia B.	1	2	3	Derek H.	1	2	3	
Milva C.	1	2	3	Jeffrey L.	1	2	3	
Robert C.	1	2	3	John-Paul L.	1	2	3	
Lise D.	1	2	3	Tracey M.	1	2	3	
Tessa D.	1	2	3	Corey M.	1	2	3	
Robin E.	1	2	3	Gary M.	1	2	3	
Jamie F.	1	2	3	Jane P.	1	2	3	
Michael G.	1	2	3	Susan R.	1	2	3	

BC-Scale items in order of administration:

lend you something when you needed it.

share a snack or a toy with you.

invite you over to their house or to go somewhere with them.

share something personal or private with you.

ignore or avoid you.

pick you for their team or as their partner.

hang around with you.

help you with your school work.

stick up for you or defend you.

joke or goof around with you.

help you when you were hurt or sad.

boss or push you around.

tease or say mean things about you.

sit beside you or stand in line with you.

exclude you or not letting you join  
in a game or activity.

talk with you.

mean to you.

nice to you.

phone you.

smile at you and were cheerful.

ask you if you would like to play with them.

physically hurt you.

## APPENDIX D

### Manual for Social Skills Training Program Emphasizing Affective Communication Processes

#### Overview of Program

Selected children will be trained individually, once a week for a minimum of ten one-hour sessions.

Sessions will involve didactic or instructional coaching and as well as ongoing relationship problem solving.

The stress in this program will be on the positive and negative affective content of the child's typical social interaction and the communicative consequences of this social behavior.

While the competency under remediation will be somewhat unique to this study, the intervention procedures to be used will be compatible with current developments in the area of social skills training. More specifically, this intervention program integrates the three stages of instructional social skills training formalized by Ladd and Mize (1983) and implemented on a more informal basis in the interventions of Oden and Asher (1977), LaGreca and Santogrossi (1980), and Ladd (1981). These three stages are:

- enhancing skill concepts
- promoting skilled performance
- fostering skill maintenance and generalization

The groundwork for this intervention will be laid down in the first two sessions during which the child will be given a fairly standardized presentation of the potential role of affective communications in relationship formation, maintenance and enhancement processes.

Using the Ladd and Mize (1983) framework, the presentation of information in this initial or introductory phase will be geared toward enhancing skill concepts. This will be achieved by using the five sub-steps proposed by these authors:

- establishing the intent to learn the skill concept
- defining the skill concept in terms of its attributes
- generating exemplars (both verbally and with active role play)

- promoting the rehearsal and recall of the skill concept (both verbally and behaviorally)
- refining and generalizing the skill concept

In order to facilitate complete appreciation of the social implications of affective communication, instances of both successful conveyance of interest and of disinterest/dislike will be provided. As Hulse, Deese & Egeth (1975) note, the use of both positive (successful) and negative (unsuccessful) instances should promote a fuller understanding of the skills involved.

To help develop this awareness, the child will role play various communicative sequences with the therapist - trying to either guess the affect acted out by the therapist or to communicate the assigned affect in a predetermined (pretend) situation. (As Ladd and Mize (1983) note, this initial phase of skill experimentation, without the threat of failure or ridicule from peers, is an important first step in the behavior/skill acquisition process.)

This practice will begin in the second session and be repeated, where appropriate, in later sessions. During this session, the therapist will provide performance feedback, encouragement and increasingly demanding performance standards as the child begins to be more competent.

Once this didactic process has been completed, the coach's role will begin to shift from instructor to consultant/problem solver. First, the affective content of that child's peer interactions will be considered at a general level. In this way, the social skills training will move from a fairly conceptual and abstract focus to a more concrete and behavioral focus in which the discussion will centre on the actual interactional 'patterns' of that child and the affective 'message' that his/her behavior likely conveys to his/her classmates.

By the third session, the focus of the intervention program will shift to the improvement of a small number of the child's peer relationships. The focus will be on a few relationships for two reasons.

a) First, this will protect against over-extending the child by allowing him/her to concentrate on clearly defined and circumscribed behavioral assignments which will be given at the end of each session and restricted to specific relationships.

b) Second, the primary goal of this intervention is the enhancement of the child's ability to have positive relationships as opposed to effecting a general improvement in the child's peer-group status. Accordingly, emphasis will be placed on developing those dyadic relationships that the child most wishes to enhance. Moreover, this will be accomplished by encouraging the child to improve the affective content of his/her transactions with these targeted peers.

Each week, these targeted relationships will be reviewed in order to assess the effects of these 'behavioral' assignments, to assist in solving any problems that may have arisen, and to encourage further effort. Thus, the child will be afforded the opportunity to refine and elaborate the skills learned or, to attain operative competence (Bandura, 1982; Ladd & Mize, 1983). This phase will also involve encouraging children to evaluate their own performance. (Ladd and Mize (1983) argue that this is essential for skill generalization and maintenance.)

Depending on the progress made, the number of friendship targets can be increased to three in later sessions with the problem-solving focus remaining on these specific relationships and on the current state of these targeted relationships. The focus will remain on encouraging the child to communicate a more positive affective orientation toward one's peers and increasing the child's ability to self-evaluate performance.

The focus in the last sessions will also be on skill maintenance and generalization.

Taken together, these procedures should allow the child, having initially acquired these communication skills with the support of a socially competent therapist, to gradually master these skills unsupported in the peer environment: a sequence advocated by both Bronfenbrenner (1979) as well as Ladd and Mize (1983).

### Detailed Description of Session Procedures

#### Introductory (Initial) Session:

Although the order in which the following objectives are met can vary, it is very important that the following be realized early in the first session.

- a) The establishment of rapport between the child and the friendship skills consultant.
- b) Clarifying to the child the purpose of these sessions. Specifically, that the goal is to help him/her become better at making and keeping friends.
- c) It should also be made clear to the child that while he/she was selected for this program because we felt that the child could benefit from these sessions, this does not mean that they necessarily had far fewer friends than all the other children in their class. Rather, it is our opinion that many children as well as adults could benefit from the chance to improve their friendship making skills.

- d) The role of the friendship skills consultant and the focus of the program should also be outlined. To this end, the child should be told that in the initial sessions, you (the consultant) will be acting mostly like a teacher: trying to teach the child some important communication skills. The child should also be informed that here we will be stressing the importance of letting others know that you like them and/or that you are interested in being their friend. In describing this focus, it should be pointed out to the child that there are many ways that people show how they feel. For instance, when they are helpful or kind it usually shows that they like the other person. However, when someone is mean or ignores the another child, these behaviors give the impression that this person does not like this other child. In fact, everything one does to or with other people can tell them something about how you feel toward them. Since people tend to like others who they feel like them, it is pretty important to try hard to communicate positive feelings toward and interest in others. (Further elaboration of these communication processes will come in the second session.)
- e) The child should also be told that in our sessions we will first discuss the kinds of things that people can do to show positive interest or liking and some of the things which communicate the opposite; that is, disliking or disinterest: that we'll even try to act out some of these behaviors in our sessions so that the child can become more familiar and aware of the ways in which we communicate our feelings.
- f) The second phase of our program should also be described. Specifically, the child will be choosing (from a list given to him/her in the second session) two children with whom he/she wishes to try out these new friendship making skills. The consultant's role in this process should also be described. Here, instead of acting primarily as a teacher, the consultant's role will be that of a problem-solving consultant/helper. Every week the consultant will meet with the child to review the efforts of the child and how well the things, that he/she has tried, have worked. Then the consultant will try to help come up with solutions to any problems that may have arisen in the course of trying out these new friendship making skills.
- g) The reasons for audiotaping these sessions should also be presented. The child should be told that this is a demonstration research project designed to show that this kind of program can help kids become better at making friends: that we've designed our program just as we've described to them but we also have to show that we followed the program as described. Thus, only the two consultant's doing these sessions and their supervisor at the university will be listening to the tapes to make sure that we are doing the program correctly. Then we will be erasing the tapes. It must be stressed to the child that just as every child's answers to the questionnaires we gave in class were kept totally private, everything that the child and the consultant discuss will also be treated with complete confidentiality. It is up to the child to decide what they wish to tell their classmates about what these sessions are about. The child must also be told that if they feel uncomfortable and do not wished the sessions to be taped, that we will not tape them

- though it would help us if we could.

Once these introductory topics have been covered, the focus should switch to exploring how the child sees his/her status in the class and what he/she would like to get out of this program.

- The child should be asked which same-sex peers (use the words boys or girls as appropriate here) he/she feels they get along with well, who they get along with sometimes and who they really have a hard time with. (The child's answers should be written down.)

- The child should also be asked if there are any opposite-sex peers (girls or boys) whom they have a particularly hard time with.

- These questions can serve both to warm the child up to disclosing about their peer relations, as well as to communicate behaviorally that our focus in these session will be on their social world, their relationships.

- The child should be told that while you will be acting as a teacher and consultant in these sessions, you too have a lot to learn about their relationships, about how things go between them and their classmates, if you are to be of help to them.

- Following these specific questions, more general questions should be asked concerning their feelings about the relationships with classmates, how our program strikes them, what they would like to get out of it, if they feel they feel that they do have difficulties with their classmates and, if so, what they feel may be the reasons for this.

- Throughout the first session, the main point which should be conveyed to the child is that this program is for them and will be tailored to their needs: that you are here for their use as a special personal consultant.

Depending on the length of time left in the first session, actual discussion of affective communication processes can begin now or can wait till the next session. The following is the maximum to be covered in this first session.

The first step involves having the child consider the affective content of the twenty-two behaviors tapped by the Behavioral Communicators of Liking Scale.

- These behaviors should first be introduced as the ones we used in the one measure we did in class where we asked how many times in the last month each child, for instance, "lent them something when you needed it".

The child should be shown the list of these twenty-two behaviors (reproduced below) and told that we developed these items from many interviews with children their age, that these behaviors formed the clues these children used most frequently when trying to figure out who liked them and how much.

lend you something when you needed it.

share a snack or a toy with you.

invite you over to their house or to go somewhere with them.

share something personal or private with you.

ignore or avoid you.

pick you for their team or as their partner.

hang around with you.

help you with your school work.

stick up for you or defend you.

joke or goof around with you.

help you when you were hurt or sad.

boss or push you around.

tease or say mean things about you.

sit beside you or stand in line with you.

exclude you or not letting you join in a game or activity.

talk with you.

were mean to you.

were nice to you.

phoning you.

smile at you and were cheerful.

ask you if you would like to play with them.

physically hurt you.

The child should then guess what his or her impression would be if a hypothetical classmate came up to them and did each of these twenty-two things to them.

- The most important point to be made with this exercise is that many, if not all, of the things that we do to others tells them something about how we feel about them.

Once these twenty-two behaviors have been reviewed, ask the child how much they would like someone who came up to them and

- a) was mean to them, or
- b) shared some of their lunch.

The point to be brought out here is that often the most important thing about many behaviors is the impression that these actions give to others about our feelings and that if the other person thinks that you are not interested in them and how they feel, then they are much less likely to want to be your friend.

Time permitting, two other points can be developed in the context of this exercise.

- The child can be asked how much they would think this hypothetical person liked them if on the first day they "smiled at you and were cheerful", a few days later "stood in line with you" and "lent you something when you needed it" and then, on the next day, "asked you to be their partner" and "defended you when someone was giving you a hard time".

The important thing here is to point out to the child that the communication of an interest in being friends is a slow and gradual process (this point will be developed in greater depth later in the second session).

- Next have the child guess what they would think if the following sequence had occurred instead: on the first day they "smiled at you and were cheerful", a few days later "stood in line with you" and "lent you something when you needed it" and then, on the next day instead of being nice they "teased you and said mean things about you" and then tried to "exclude you from an activity or group".

The goal with this exercise is to demonstrate how behaviors communicating positive interest and liking can be quickly cancelled out by mean or unfriendly acts.

At this point, in preparation for the end of the session, summarize the points above (or those points which have covered). These are:

- a) Many behaviors are important because they show or communicate our feelings toward others.
  
- b) Showing that you like the other person and are interested in them is important to the friendship making and maintaining process.
  
- c) These impressions are built up slowly through a series of behaviors. If one tries to show too much interest too fast it might overwhelm or turn off the other child (This point is introduced here for the first time in order to try to prevent the child from going overboard and trying to be 'too friendly, after this first session. It will be elaborated in the second session).
  
- d) While it often takes a while to convince another child that you like them, this impression can be cancelled out quickly if you are mean to them.

### Closing the First Session

Briefly review the purpose and focus of the program as well as your role and the child's role. Then, describe what you will be doing in the next session. Ask if the child has any questions. Compliment the child on his/her attention and participation (answers). Tell the child that you are looking forward to seeing them next week.

### Second Session

If there was any material which had not been covered in the first session, pick up where you had left off and then proceed with the following exercises. In this session, the range of behaviors which might be used to convey friendliness will be reviewed first.

- First, present the list of the 22 social interaction scale behaviors which was used in the first session reminding the child that this is the list of those behaviors which seemed to show strongly how children their age felt about each other.

- Then, while noting that there are many other behaviors which might also communicate either liking or disliking, ask the child to generate some other examples of such behaviors. These should be responded to in an encouraging fashion, and written down.

- Once the child has come up with five to ten examples, an additional list of behaviors which children tend to infer affective orientation from can be presented and discussed. (This list includes those behaviors which, while they did not meet the criteria for inclusion on the BCOL-Scale, interview data (Study 1) suggests that these behaviors may be important in conveying affect at this age.)

At this point, the child should have three lists of behaviours. With the help of the consultant, the child should then divide these behaviors into the following five sets (with the consultant recording the child's responses).

a) Friendly behaviors which might work well with almost anybody including someone with whom you have not been getting along.

b) Friendly behaviors which while perhaps too strong or friendly for using with a former enemy, might work well with a new acquaintance as well as with good friends.

c) Behaviors appropriate with someone whom you know a bit and have already been friendly with or someone who already is a good friend.

d) Friendly behaviors appropriate only with children you are already really good friends with.

e) Behaviors that generally don't communicate a desire to be friends.

This task should be introduced with a brief statement that friendship making is a gradual process, that if one comes on too strong, if one tries to be too friendly too fast, it can turn the other(s) off since they need time to decide if they want to be friends also.

- During the course of this task, the child can be questioned about the reasons why any one behavior might work best at a certain point in the friendship making process.

- Ensuing discussion should be geared to emphasize the point that while it is natural for children to begin to like those children who seem to like them, this process takes time. In addition, the issue of how to turn around relationships which have had a negative history needs to be discussed. The major point here should centre on how this situation will demand more patience as the other child will very likely require more time and evidence before believing that you really want to be friends.

Once this exercise has been completed, the child should be encouraged to summarize the main points (through the use of a question/answer approach). Then the child should pick, for role playing, (from memory if possible) friendly behaviors for each of the following situations:

-with a new acquaintance

-with a 'luke warm' friend

-with a good friend

-with a former enemy

In these role plays, the consultant plays the role of the other child. In the role play involving the 'former enemy', it is important for the child to come to appreciate the difference between a neutral (ignore) response and a more active rebuff. (This ability to

interpret others' responses to overtures will be further developed in later problem-solving sessions.) Again, the an additional goal is to try to develop in the child a realistic yet optimistic set of expectations.

At this point, the child can select two names from our short list of possible friendship targets. These 'targets' will be those same-sex peers whose ratings of liking for the child ranged from '4' (like to be with half-the-time) to '6' (almost never like to be with). Peers who have rated the child at '7' (Never like to be with) will be included on the list only if the 4-6 criterion fails to yield a list of at least six peers to chose from. Importantly, this list of potential friendship candidates will be presented to the child without any description of the criteria used to select these names. In this way the confidentiality of questionnaire responses will be respected.

Once the child has selected the two classmates that he/she would like to try to become friends with, the child's perceptions concerning these other children need to be explored so that together with the child, the consultant can brainstorm concerning overtures to be made that week toward the two peers selected.

- For the first week, these overtures should be limited in number to three or fewer for each of the two friendship targets and should be of fairly low intensity: perhaps offering to share a snack, but not inviting over to the child's house or phoning.
- Although not to be made available to the child, the consultant will also have a summary of the typical interactions with the child as reported by each of the peers on the selection list. This information will be used to guage the current state of the relationship and to choose appropriate behavioral 'tasks', for the child.
- Once selected, these behavioral tasks are then written down on an assignment sheet specifically designed for this purpose. On this sheet are spaces for up to five behavioral goals for each peer as well as a column for checking each task off when it has been carried out and a column for recording the response (if any) of the peer.
- Each week, the child is to take this sheet home with him/her both as a reminder and as a record keeping aid. The child is expected to carry out these contracted behaviors as best he/she can.
- At the same, it should also be stressed to the child that while we can sometimes plan a specific friendly behavior, we should also be open to opportunities as they naturally occur. For example, if

someone needed help, offering that help could be a fairly powerful way of communicating a friendly attitude. Also, some behaviors can be generally applied such as "being cheerful and pleasant" around the other person (without over-doing it).

### Closing of Session 2

- Review points concerning the need to match friendly behaviors with the current state of the relationship as well as the need for patience.
  
- Describe what you and the child will be doing from here on in these sessions.
  
- Go over the behavioral tasks (assignment) and goals for the next week.
  
- Remind the child that, if possible, each night he/she should make a short note of anything they tried and how it seemed to work. This will help the child remember when we talk about how things went next week.
  
- Ask if the child has any questions.
  
- Compliment the child on their participation, wish them luck and give an encouraging statement on how you think it will go.

### Sessions 3 to 10

Each week the consultant and child will meet for one hour to discuss progress in making friends with the targeted classmates. Discussion should focus, at least initially, around the following questions:

- a) Did the child try to carry out the friendly behaviors planned during the last session?
  
- b) What was the result? How did the other child respond, both immediately and over the week?

c) Did the child try any other friendly behaviors with these two classmates?

d) How did these work?

c) Were there any problems with these relationships which arose during the week?

Once it has been ascertained how well the child has been able to carry through on contracted overtures, his/her efforts should be quantified and recorded so that the trainer and child can quickly assess how well things are progressing. For each target the following scores should be entered:

- a) the number of planned friendly behaviors attempted (note, a reciprocal or positive response from the target is not necessary since the goal is to show rather than elicit interest),
- b) the number of planned behaviors not attempted, and,
- c) the number of unplanned friendly behaviors carried through.

When reviewing and discussing the child's friendly behavior, the following goals should also be kept in mind:

- a) to help the child learn both patience and flexibility in the friendship making process,
- b) to review and solidify points raised in the first two didactic sessions.
- c) to increase the child's awareness of the affective communication component of all their social behavior.
- d) to encourage and help the child to persevere and to solve any problems as these emerge
- e) to foster an increase in both the quantity and the quality of the

child's friendly behavior.

- f) It is very important that BOTH the quality and quantity of friendly behaviors be attended to. Often it may prove necessary to focus considerable attention simply on encouraging the child to make the assigned friendly overtures. However, it is seen as being equally important that the child become increasingly skilled in his/her ability to engage in these friendly acts as well. Thus, role play as well as reflective discussion should be used to help the child enact and master situations which are proving difficult for him or her.

By the seventh session, if the child has become sufficiently adept at the concepts and behavioral skills involved, an additional child can be added to his/her list of primary friendship targets. The criteria for deciding whether or not the child is ready for an additional friendship target are as follows:

- a) In the two weeks preceding the most recent week, the child was able to complete at least three of the five behavioral assignments with each targeted peer.
- b) In the last week, the child was able to carry out a minimum of four friendly behaviors with each targeted peer, three of which have to have been planned or assigned overtures.
- c) The child reports some improvement in the amount of friendliness demonstrated by these two peers toward him or her.

If these criteria are met, a third child can be added. Again, behavioral assignments should start out with a maximum of three overtures, all of which are of relatively 'low intensity' in terms of the friendliness which the targeted peers must reciprocate. As this relationship also improves, up to five friendly behaviors can be planned for this third target on a weekly basis.

Importantly, while the child works on this extra relationship he/she continues to plan friendly behaviors for each of the first two children.

From the seventh session onward, greater emphasis should be placed on the child's spontaneous generation of (extra) friendly behaviors, as well as on his/her primary role in selecting weekly goals since these skills will be important if the child is to be able to continue being friendly after the program ends.

- One other important awareness which should be developed whenever appropriate is that it is quite possible to have both temporal fluctuations in any friendship as well as variations in intensity in friendships across classmates: that the child will always be faced with the need to match their friendship aspirations/needs with those of others. In other words, the intensity of any friendship depends not solely on what we want, but on what others want too.

- It should also be pointed out to the child that the fact that we have a range of friendships (in terms of their intensity or depth) does not necessarily reflect on our worth as a person, rather it is simply a facet of life.

- Another important point which should be made in regards to the fluctuations which occur in every relationship, is the importance of rolling with these changes and not to over-react to demonstrations of disinterest, or even rebuffs, as often these are either temporary or caused by factors other than the potential of the relationship. It is important for the child to learn how to persevere in communicating a friendly disposition to the other, while being able to accommodate this other person's responses and wishes in terms of whether they want this particular friendship.

Summarizing, in sessions three through ten, the most important skills for the child to learn are:

- a) the ability to take initiatives in friendship making,
- b) the ability to take rebuffs in stride and to keep these in perspective,
- b) the ability, at the same time, to modulate their overtures to the current state of the relationship and to feedback from the other.

Throughout these sessions it is very important for the consultant to remain very supportive and encouraging, to recognize the efforts of the child and to acknowledge empathetically the difficulties that they encounter. Each week, based on the progress made, goals for the week should be made with the active involvement of the child. It is also important that these assignments be realistic and achievable. If the child consistently fails to carry these assignments out, then the consultant must try to think up with the child weekly 'tasks, that the child can manage. For the child to gain confidence in their ability to make and keep friends is seen to be as important as it is to increase in his/her awareness of the importance of affective communication in the friendship process.

### The Last Session

As part of the last session, it is important to have the child review the basic concepts and skills presented, as well as the progress that he/she has made.

- It is particularly important to convey to the child that he/she can exercise some control of their friendship making, that if they would like to make a specific friend, behaviors which consistently convey an interest in and a liking for the other will generally enhance the relationship even if the final state of the friendship will also depend on what kind of friend, or how intense a friendship, the other person wants as well.

Finally, the progress of the child should be noted positively and the child congratulated on his/her efforts. The need to continue working on these friendship skills should be stressed as well while, at the same time, being sure to point out that,

- for all of us, friendship skills are acquired over a lifetime, that we all can learn more by working on our ability to be friendly and, through these efforts, discovering more what friendship means and entails.

## APPENDIX E

### Relative Power of Various Treatment Comparisons For Study 4

In assessing the results of Study 4, several preliminary analyses were conducted in order to ensure that any treatment related effects were not qualified by either the gender of the child or the particular social skills trainer involved in that intervention. The following power chart compares the size of effect (in the population) that would likely have led to significant results being found in this sample across various treatment comparisons including the preliminary analyses of possible gender and trainer effects. The most informative values in this power chart are the 'omega squares' ( $w^2$ ) or percentage of variance that would have to be accounted for by a given effect before it would likely (power =  $1 - B = .90$ ) lead to significant results at alpha = .05. These omega square values are dependent on five factors: the alpha criterion, the level of power ( $1 - B$ ) desired, the degrees of freedom for the effect (numerator) and the error term (denominator) for that comparison as well as the overall sample size for that comparison.

Examining these omega square values, it is evident that given the sample size and design used in Study 4 one would have expected to generate significant trainer and gender interactions with other treatment effects even if these interactional effects had been roughly one-third the magnitude (in terms of percentage of variance accounted for) of the treatment effects of primary interest in this study. Thus, the lack of significant gender and trainer effects in these preliminary analyses would not appear to be the result of a lack of power especially since other treatment effects were much larger and attained statistical significance.

Power Chart for Various Treatment Comparisons  
at Alpha = .05 and Power (1 - B) = .90

Comparison	Effect	Error term	df <sub>den</sub>	df <sub>num</sub>	w <sup>2</sup>
one treatment group over two times	Time	MS <sub>s,a</sub>	11	1	.205
two treatment groups over 1 time	Group	MS <sub>s/a</sub>	22	1	.196
two treatment groups over two times	Group X Time	MS <sub>b,s/a</sub>	22	1	.109
two treatment groups (A) by gender (B) by trainer (C) over 3 times (D)	A x B x D	MS <sub>d,s/abc</sub>	32	2	.063
	A x C x D	MS <sub>d,s/abc</sub>	32	2	.063
	A x B x C x D	MS <sub>d,s/abc</sub>	32	2	.063

APPENDIX F

Explanation of Procedures Adopted to Control For  
Family-wise Alpha Slippage

When exploring various treatment effects, it was necessary to conduct several planned comparisons in order to precisely locate various treatment effects. It was therefore important to control family-wise erosion of the alpha criterion. This was achieved in several ways. First, planned comparisons in all of the following sections were limited to only

those of primary interest. Second, any specific planned comparison was conducted only if the related omnibus F-test was significant at the .05 level (a procedure advocated by both Hayes (1983, pp. 413-444) and Keppel (1982, pp. 160-164). Finally, the family-wise alpha criterion was adjusted on the basis of the Bonferroni inequality. Specifically, the overall or family-wise alpha was held at .05 by multiplying this family-wise alpha by the reciprocal of the number of comparisons made ( $1/J$ ) in order to determine the alpha criterion to be used for each comparison within that family (a procedure advocated by Hayes, 1983, pp. 435) and Myers (1979, pp. 298-300). Furthermore, a family of comparisons was defined broadly as all those comparisons designed to explore a similar type of treatment effect. This represents a more inclusive definition of what constitutes a family of comparisons than procedures such as the Tukey test for honestly significant differences (HSD) and the Newman-Keuls layered test, both of which adjust alpha only for those comparisons made within a single set of means (Hayes, 1983; Keppel, 1982). As employed in this manner, this Bonferroni correction represents a fairly stringent form of alpha control. However, by limiting the number of comparisons made, this correction is still preferable (in terms of statistical power) than the Sheffe procedure which would correct for all possible contrasts within a single set of means. At the same time, the use of a broad definition of what constitutes a family of comparisons resulted in more stringent control of alpha than in many procedures used to protect alpha in multiple comparisons. Thus, all comparisons reported as being significant in subsequent analyses were also significant using either Tukey's test for honestly significant differences or the Newman-Keuls layered test. However, adopting an approach similar to that suggested by Keppel (1982, pp.163-164), any results found to be significant using either the Tukey HSD or the Newman-Keuls layered test but not with the Bonferroni adjusted alpha were interpreted tentatively, that is, as perhaps being significant but not being conclusively demonstrated.