# Children's Friends and Behavioral Similarity in Two Social Contexts

François Poulin, Université Laval, Antonius H. N. Cillessen, Julie A. Hubbard, John D. Coie, Duke University, Kenneth A. Dodge and David Schwartz, Vanderbilt University

### **Abstract**

The general purpose of this study was to examine similarity between friends with respect to behavior. The specific goals were to consider; 1) different sources of evaluation (peer ratings and direct observations); 2) different social contexts (classroom and play group); and 3) different subtypes of aggressive behavior (proactive and reactive aggression). In the first phase of the study, sociometric assessments and peer evaluations of behavior were conducted in the school setting with third-grade boys and girls (n = 268). In the second phase, a subsample of boys participated in a series of play group sessions (n = 66). Direct observations and peer ratings of children's behavior were conducted in those sessions. Results showed in both social contexts a tendency towards similarity among friends, especially with respect to aggressive behavior. Separate analyses for subtypes of aggressive behavior revealed that the similarity hypothesis applied for proactive aggression but not for reactive aggression.

Keywords: Friendship; aggression; play groups

Friendships with same-age peers play an important role in children's social development (Sullivan, 1953; Youniss, 1980). Friendship relations provide children with unique opportunities to acquire new and refine already existing social skills. They also provide emotional and cognitive resources and are the forerunners of subsequent relationships (Hartup, 1992).

Given the developmental importance of friendships, researchers have wondered why children develop friendships with certain peers, but not with others. According to Epstein (1989), three factors explain the formation of friendships. First, the basic feature of friendship formation among children is proximity. This refers to the context in which children meet one another (e.g., home, community, school). Second, visible features like age, sex, and race, also are determinants because most friendships in childhood are same-age, same-sex, and same-race (Berndt, 1988). Third, the most important factor in friendship formation is the degree of similarity between two children with respect to characteristics such as social behavior, attitudes, interests, or personality.

This investigation was supported by NIMH grant No. 38765 to J. D. Coie and K. A. Dodge. Correspondence regarding this article should be addressed to François Poulin, Oregon Social Learning Center, 207 E. Fifth Ave Suite 202, Eugene OR 97401, USA. (e-mail: francois@tigger.oslc.org).

Similarity between two friends can be associated with the formation of their friendship but can also be the result of the friendship. Kandel (1978) demonstrated that similarity between friends at a given point in time can be attributed to two processes: selection, that is, the selective affiliation with peers who are similar, and socialization, that is, mutual influence during the development of a friendship. Although researchers have reported similarity between friends with respect to a variety of characteristics (Berndt, 1988), relatively few studies have focused on the role of behavioral similarity.

The studies that have been conducted on behavioral similarity and friendship lead to one important conclusion: friends seem to be similar with respect to deviant behaviors. For example, similarity between friends has been observed for drug use, smoking, alcohol abuse, early sexual intercourse, and delinquency (Billy, Rodgers, & Udry, 1984; Cohen, 1977; Dishion, Capaldi, Spracklen, & Li, 1995; Eiser, Morgan, Gammage, Brokks, & Kirby, 1991; Fisher & Bauman, 1988; Kandel, 1978; Rodgers, Billy, & Udry, 1984; Urberg, Halliday-Scher, & Tolson, 1991). These studies were conducted with adolescents as these expressions of deviant behaviors are usually not observed in childhood. Only very few studies have reported similarity between friends in terms of prosocial or competent behavior. Rubin, Lynch, Coplan, Rose-Krasnor and Booth (1994) observed behavioral similarity between playmates with respect to cognitive play style and social participation.

Behavioral similarity between friends in childhood seems to be characterized by matching levels of salient, acting out, aggressive behaviors (Cairns & Cairns, 1991). Cairns, Cairns, Neckerman, Gest, and Gariépy (1988) reported a high similarity for aggression between reciprocal friends and within social networks. Bukowski and Newcomb (1993) shed more light on this result by observing that similarity for aggression is an antecedent and a consequence of friendship. More specifically, children were similar to their friends before they met them and friends who were not similar to each other became more similar if their friendship remained stable. This similarity between friends with respect to aggression led Cairns et al. (1988) to conclude that aggressive children tend to affiliate with aggressive peers. The general purpose of the present research is to study in more detail the behavioral similarity phenomenon in childhood for aggression as well as for prosocial behaviors. Three specific aspects of behavioral similarity between friends were investigated: 1) the source of behavioral assessments; 2) the context in which children's friendships are studied; and 3) the distinction between different subtypes of aggressive behavior.

The first specific goal of this study is related to the source of behavioral data. Previous studies of similarities in children's friendships often have relied on indirect methods of assessing behavioral characteristics, such as peer-, teacher-, or selfreports. These methods may inflate estimates of similarity because of biases in perceiving relationships (Berndt & Keefe, 1995). In describing their own friends' characteristics children may be inclined to focus on shared interests and behavioral qualities. Peer evaluations (Bukowski & Newcomb, 1993) or teacher reports (Cairns et al., 1988) are good alternatives but may be subject to stereotyping effects. That is, peers and teachers may be inclined to assume that children who are friends with aggressive children are aggressive themselves. It is important, therefore, to test the similarity hypothesis with direct observations of children's social interactions.

In order to facilitate direct observations and to obtain a rich sample of interactional data, the participants in this study were videotaped in small play groups across a week of play group sessions. Data from peer evaluations were also obtained on these same boys in the school context. This achieved two purposes. It allowed us to test the replication of previous research findings based on other reports, and it provided a test of the similarity hypothesis across two contexts. The school context provided a full range of child peers and included peers' ratings across a broad range of interaction settings, but was subject to stereotyping effects. The small play group context had a restricted number of peers for friendship choice and play partnerships. It was also constrained by limited space and play opportunities and intensified the interactions of group members. These homogenizing influences on behavior create the conditions for a more robust test of the friendship-similarity hypothesis because all the group members are likely to be similar to each other whether they are friends are not. The advantage of using videotapes of small play groups is that more intensive behavioral ratings can be utilized and the richness of behavioral interactions can be explored. This is the second specific purpose of this study.

Direct observations of behavior in the context of small play groups also permit the examination of potentially different effects of distinct forms of aggression on friendship formation. In the aggression literature a distinction has been made between two types of aggression (Atkins & Stoff, 1993; Dodge, 1991; Dodge & Coie, 1987; Price & Dodge, 1989). Reactive aggression is a defensive reaction to a perceived threatening stimulus and is accompanied by some visible form of anger. Proactive aggression is an unprovoked aversive means of influencing or coercing another person and is more goal-directed than reactive aggression. The distinction between proactive and reactive aggression in friendship similarity has both a theoretical rationale and an empirical basis. The theory is that proactive aggression represents a behavioral style or strategy for interacting socially. By definition, it has instrumental and goal-directed components. Children who are proactively aggressive in their behavior also cognitively endorse this strategy as leading to success and as being socially acceptable (Crick & Dodge, 1996). This theory and these social-cognitive empirical findings suggest that proactively aggressive children might find this behavior acceptable and desirable in their friends. As a behavioral style, friendship similarity could be hypothesized. On the other hand, reactive aggression is by definition an out-of-control reaction to a perceived threat. It is not a planned behavior. Perpetrators of reactive aggression do not necessarily endorse this behavior. A child might like a peer in spite of, not because of reactive aggression. Thus, friendship similarity would not be hypothesized.

Poulin and Boivin (1996) recently reported data which support the usefulness of the proactive/reactive distinction in the study of children's friendships. Using a teacher-report of proactive and reactive aggression, they found that boys are more similar to their friends than to other classmates with respect to proactive aggression but not to reactive aggression. These results suggest that the tendency observed in aggressive boys to affiliate together applies only for proactively aggressive boys. Considering the limits raised earlier about the source of behavioral assessment and the social context, the present study offers an excellent occasion to expand Poulin and Boivin's results by verifying if they could be replicated in a small play group context with a direct observation of behavior. If this is found, similarity between friends with respect to proactive aggression can be

considered as a robust phenomenon. The test of the link between similarity of proactive aggression and friendship is the third specific goal of this study.

To reach these goals, the behavior of children and their friends was studied in the context of the school classroom and in experimental play groups in the laboratory. Sociometric interviews in the classroom were used to identify friendship relations and to obtain behavioral scores for aggression and leadership from peer nominations. A subsample of boys of the children involved in the first phase also participated in the second phase of the study. Small play groups of familiar peers met in the laboratory for a series of daily sessions. All sessions were videotaped and later coded for the occurrence of different types of aggressive behaviors. In a post-session interview, children completed a liking scale and rated each peer on various social-interactive behaviors. The information from the post-session interviews was used to identify friendship relations in the play groups and to compute social-interactive behavior scores.

To test the similarity hypothesis, the correlations between children's scores and the scores of their friends were considered as an index of similarity. It was hypothesized that behavioral similarity would be related to the type of relationship. That is, we expected higher correlations within pairs of friends than within pairs of children who are not friends. Evidence for a similarity effect exists for a specific behavior when the behavioral similarity is significantly higher between the scores of children and their friends than between the scores of children and their non friend peers.

## Method

## **Participants**

Participants in the first phase of the study were 268 children (126 girls; 142 boys) from 11 third-grade classrooms in 11 different schools from one inner-city school system. Ninety percent of the children in this school system were African—American and from a lower to lower-middle class background. Participants in the second phase of the study were 66 African—American third-grade boys, selected from the larger sample in the first phase of the study. Eleven play groups were formed with six familiar boys from the same classroom whose parents had given them permission to participate. The six boys from each group were brought together for five consecutive play sessions during a one-week period in the summer following their third-grade school year.

# Sociometric Testing

A sociometric interview was completed during the spring. Each child received a roster of all his or her classmates and was asked to nominate an unlimited number of liked most and liked least peers. Cross-sex nominations were permitted. The liked most nominations were used to assess friendship relationships. For each child, the peers who were named as liked most were determined. By considering these nominations on a dyadic basis, it was possible to identify who reciprocated the liked most nominations of each child (i.e., whether the children chosen as liked most also choose the voter as liked most) and who did not. In this way, each child has a number of *friends* (A chose B as liked most and B chose A as liked most).

All remaining peers were considered as the child's non friend peers. Theoretically, both the number of friends and the number of non-friends could vary from 0 to n-1 (n equals the number of children in the classroom). Research has indicated that liked most choices are a valid method to identify friendship among children, although they do not allow the distinction between 'best friends' and 'friends' (Bukowski & Hoza, 1989; Hartup, 1992). In our data set, 96 girls and 112 boys had at least one friend and at least one non-friend. Finally, each subject was also asked to nominate the peers in his class who started fights, as well as the ones who were leaders. Of all the children in the 11 classrooms, 79% participated as voters in the sociometric testing part of this project.

# Play Group Procedures

The play groups were initially designed to study the development of aggressive behavior in boys' dyadic peer relationships. In order to do so, two of the six boys in each play group formed a mutually aggressive dyad, as identified by their classroom peers using dyadic ratings (cf. Coie, Dodge, Cillessen, & Hubbard, 1994). The other four group members were selected at random from the remaining boys in the classroom whose parents had given them permission to participate. Play groups met during the summer at the end of the school year following procedures used in the past in similar studies (Coie & Kupersmidt, 1983; Dodge, 1983; Dodge, Coie, Pettit, & Price, 1990). Boys were driven individually from their homes to a university laboratory play room to participate in five daily 45-min. play sessions. The play room was filled with age-appropriate toys, including toys that allow group interaction (e.g., crayons and paper, a basketball and basket), and those that require individual participation (e.g., a single-person computer game). Boys were free to play as they wished and to interact with whom they desired. All sessions were videotaped.

## Behavioral Coding

Behavior observations were conducted on a dyadic level using time sampling. During one run through the tape of a session, the observer focused on one pair of boys and coded for each 10-sec interval of the tape which behavior occurred between the two boys. This procedure was repeated in the second run, focusing on the next pair of boys. Because there are 15 pairs in a group of six, 15 consecutive runs were made through the tape of each session. Each session contained 45 min. of play, or 270 10-sec intervals. Two types of aggression were distinguished. Proactive aggression included non-angry goal-oriented aggressive behaviors. This category was coded when a boy teased, made fun of, physically abused his dyadic partner, or used aversive means to reach an external material goal (e.g., acquisition of an object or position). Proactively aggressive behaviors were not accompanied by observable signs of anger. Reactive aggression included angry retaliatory aggressive behaviors. This category was coded when a boy responded to a stimulus provided by his dyadic partner with frustration, hostility, and retaliatory counterattacking behaviors. Signs of overt hostility, frustration, or irritability (e.g., angry facial gestures or verbalizations) were often readily observable. In addition to these types of aggression, we also coded occurrences of dominant behavior. Dominance included forceful dominance-oriented behaviors that were not aggressive in nature. This category was

coded whenever a boy successfully altered or controlled the ongoing behavior of his dyadic peer with assertive (but no aggressive) social behavior. An individual aggression score was computed for each child in each session by aggregating the child's aggression directed toward each other play group member. An overall score was obtained for each child for each behavior by computing the average amount of aggression or dominance across the play group sessions. Proactive aggression was significantly correlated with reactive aggression (r = .47, p < .01) and with dominance (r = .54, p < .01). Reactive aggression and dominance were not correlated (r = .05, ns).

# Observer Training and Agreement

Two observers, who were trained over a period of six to eight weeks, coded the play group interactions. Observers met regularly during the training period, and periodically during the actual coding, to review progress and discuss coding disagreements. Observers were randomly assigned play groups to code. Approximately 18% of the sessions (10 out of 55 sessions, containing 2700 10-second intervals) were randomly selected to be coded by both observers for unannounced agreement checks.

Assessment of inter-observer agreement was based on a definition of concordance that required agreement on within-interval event occurrence/nonoccurrence, type of initiation, and identity of the initiating boy. Kappa (K) statistics were utilized as the index of agreement (see, Cohen, 1960). Agreement for the individual codes was as follows: K = .76 for proactive aggression, K = .71 for reactive aggression, and K = .67 for dominance. For the full matrix of codes, K = .78.

#### Post-Session Interview

After the last play group session, each boy was interviewed individually, and asked to rate on a 5-point scale how much he liked to play with each member of his play group. Friendships were identified using a high rating on the rating scale (either a '4' or a '5' on the 5-point scale) as an indication of a friendship choice. Friendship was identified between two boys if they both gave each other a high rating on the like-to-play-with rating.<sup>2</sup> Reciprocity of a high score on a liking scale has been used previously to identify friendship dyads (Bukowski & Hoza, 1989). All remaining peers were considered as non-friends. In this way, each subject had a number of friends and non-friends varying from 0 to 5. Of the total of 66 boys, 58 boys had at least one friend and at least one non-friend.<sup>3</sup> Each boy also rated on a 5-point scale the extent to which each other boy in his group had engaged in each of 11 social-interactive behaviors, including: starts fights, being active, bossy, fair, friendly, sense of humor, rough-house, showing off, shy, smart, and tough. A peer-based score was computed for each child for each behavior by averaging the five ratings received from the other play group members.

## Results

Behavior scores were available for each child in the classroom context (received starts fights and leader nominations from peers) and for the boys who participated in the play group context (observed aggression and dominance; peer ratings of 11

230 F. Poulin, A. Cillessen, J. Hubbard, J. Coie, K. Dodge and D. Schwartz

behaviors). The mean and standard deviation of these behavior scores are presented in Table 1.

Table 1. Mean and Standard Deviation for Each Behavior Score

Behavior	M	SD
Classroom	The state of the s	
Starts fights		
Boys	6.25	4.10
Girls	3.64	2.73
Leader		
Boys	3.16	2.99
Girls	4.70	3.38
Play group		
Direct observations		
Dominance	5.89	9.08
Reactive aggression	7.64	8.03
Proactive aggression	24.07	16.78
Peer ratings		
Starts fights	2.55	0.88
Being active	3.11	0.67
Bossy	2.62	0.89
Fair	3.25	0.66
Friendly	2.89	0.72
A jokester	2.92	0.86
Rough-house	3.06	1.05
Showing off	2.69	0.83
Shy	2.36	0.70
Smart	2.94	0.90
Tough	2.92	1.01

In addition to the child's own score for each behavior, two new scores were computed for each child for each behavior in each of the two contexts: (1) the average level of the behavior of the peers with which the child has a friendship relation, and (2) the average level of the behavior of the peers with which the child does not have a friendship relation. To analyze the similarity between friends, we computed for each behavior the correlation between the boys' own score and the average score of their friends and the correlation between the boys' own score and the average score of their non-friends. Given the high number of behavior scores in the play group setting, the alpha level for the correlations was fixed at .01. The correlations are shown in Table 2.

The results of this analysis indicated a significant positive correlation between the members of friendship dyads for 10 of 18 behaviors. In the school setting, a significant relation between children's behavior and the behavior of their friends was found for starts fights peer nominations and leader nominations for both boys

Table 2. Correlations Between Children's Social Behaviors and the Behaviors of Friends and Nonfriend Peers

Behavior	Type of relation		t
	Friends	Nonfriend peers	
Classroom			
Starts fights			
Boys	.31**	09	2.93**
Girls	.57**	.14	4.45**
Leader			
Boys	.48**	.29**	2.31**
Girls	.19*	04	
Play group			
Direct observations			
Dominance	.03	.12	
Reactive aggression	.01	.09	
Proactive aggression	.37**	09	2.76**
Peer ratings			
Starts fights	.09	11	
Being active	.21	17	
Bossy	.10	24	
Fair	.18	.08	
Friendly	.09	02	
A jokester	.35**	.13	
Rough-house	.38**	25	3.29**
Showing off	.43**	.27	
Shy	.57**	.04	3.94**
Smart	.42**	.16	
Tough	.21	30*	2.59**

<sup>\*</sup> p < .05 \*\* p < .01

and girls. In dyads of boys, leadership behavior was also significantly correlated between the dyad members when they were not friends. In the play group setting, a significant positive correlation was found between boys' proactive aggression and the proactive aggression of their friends.<sup>4</sup> Significant positive correlations among friendship dyads were also observed for 5 of 11 peer-rated behaviors: having a sense of humor, rough-and-tumble play (rough-house), showing off, shyness, and being smart. Furthermore, a significant positive correlation was observed among non-friends' dyads for showing off. Finally, a significant negative correlation was found between the nominations for boys' toughness and their non-friend peers. Note that this correlation is in line with the similarity hypothesis.

Evidence for a similarity effect for a specific behavior exists when the correlation between children's own behavior and the behavior of their friends is significantly higher than the correlation between children's own behavior and the behavior of their non-friend peers. In order to test this effect, a t-test for

differences between two dependent correlations was conducted for each pair (Glass & Hopkins, 1984). The results of this analysis are shown in the right most column of Table 2. The results indicated that in the school context the similarity correlation was significantly higher between friends than between non-friends for starts fights nominations, for both boys and girls, and for leadership nominations for boys only. Significant differences were also found for 4 of 14 behaviors in the play group setting. For the behaviors proactive aggression, rough-and-tumble play, shyness, and toughness, the similarity correlations were significantly higher across dyads of friends than across dyads of non friends.

## **Discussion**

This study raised several issues related to behavioral similarity between friends in childhood. As with previous studies, the major focus was on aggression, but a constellation of other behaviors was also considered. The main contributions of this study were the examination of a variety of interactional behavior (including the distinction between specific types of aggression), the use of direct observation, and the analyses of behavioral similarity between friends in two different social contexts.

The results indicated that children tend to be friends with peers who display patterns of behavior that are similar to their own. However, the similarity principle applies selectively to specific behaviors. In the school setting, a similarity effect was observed for aggression for both boys and girls. In addition, similarity of leadership behavior was associated with friendship for boys. Direct observations and global peer ratings in the small play group context indicated that friends were similar with respect to proactive aggression, rough-and-tumble play, shyness, and 'being tough'. Overall, the results clearly support Cairns and Cairns' (1991) hypothesis that children tend to affiliate with others that are similar to themselves in terms of aggressive or acting out behaviors.

The results of this study further suggested that behavioral similarity between friends occurs in the naturalistic social context of the school classroom as well as in the experimental social setting of contrived play groups. Our observational data confirmed the presence of the friendship similarity effect for aggression previously found with classroom peer nominations. Moreover, the observational data allowed us to refine this result by making the distinction between proactive and reactive aggression. Friends were similar to each other in proactive aggression but not in reactive aggression.

These results are consistent with the findings of Poulin and Boivin (1996), who showed that friends were similar in proactive, but not reactive aggression using teacher perceptions of proactive and reactive aggression. Teacher reports of proactive and reactive aggression have shown mixed results regarding the distinction between these two types of aggression. Although confirmatory factor analysis supports the adequacy of a two-factor model of aggressive behavior, the two dimensions remain substantially correlated (r = .70; Dodge & Coie, 1987; Poulin & Boivin, 1996; Price & Dodge, 1989). In our current study, this measurement problem was eliminated by using direct observations of aggression. Therefore, the current results further support the hypothesis that proactive, but not reactive aggression is associated with the formation of boys' friendship.

This finding leads to questions regarding the functional role of proactive aggression. It can be assumed that children who use proactive aggression frequently are highly visible in their social group and can recognize each other easily. In the classroom, affiliation with aggressive peers for some children can be a way to reach a certain status in the peer system. For these children, being affiliated with the tough kids in school and acting like them may be a way to get some respect. In a new context where resources such as toys are limited coalitions against other group members can be an effective way to gain access to those resources. In a naturalistic observation study with children, Strayer and Noel (1986) reported that 23% of the triadic conflicts that occurred during free play were caused by an alliance of two children directed against a third. In those conflicts, the allies tended to be the more aggressive group members. Proactive aggressive boys inclined to bully and coerce their peers may be more likely to form those coalitions and become friends. Contrary to reactive aggressive children, they can tolerate a certain degree of roughness in their interactions with friends and use aggression toward other group members to obtain their goals.

A similarity effect was not found for any of the prosocial behaviors in the play group context (i.e., fairness, friendliness, being smart). Most children probably are attracted to peers who behave prosocially, whether or not they are prosocial themselves. This finding supports the idea that antisocial behaviors play a critical role in the emergence of social structure in groups, whereas prosocial behavior are less influential in friendship selection (cf. Cairns et al., 1988; Strayer & Noel, 1986).

Analogous to the findings for aggression, and consistent with the findings of Bukowski and Newcomb (1993), the friendship similarity effect was also found for shyness. Although completely different constructs, shyness and aggression have in common that both are deviant behaviors demonstrated by only a few children. Therefore shy children may easily recognize each other and subsequently affiliate with one another. Similar to aggressive children, shy children may also have mutual interests in common (i.e., non-risky, non-extroverted activities) and may present less threat to each other than more out-going children. However, more research is needed using direct observations of shyness and related behaviors.

Behavioral similarity in friendship traditionally has been evaluated by indirect sources of information leaving the door open to a variety of biases. In this study, significant behavioral similarity between friends has been reported for the first time using direct observations of behavior by trained observers. This suggests that friends are similar to each other not only in terms of their reputation (as perceived by peers or teachers) but also with respect to their true actual behavior (specifically for aggression).

Some important questions remain unanswered regarding behavioral similarity and friendship. As discussed earlier, similarity between reciprocal friends may be attributable either to selective affiliation predicting friendship choice or to socialization during friendship formation (Kandel, 1978). Poulin and Boivin (1996) found that proactively aggressive boys selected proactively aggressive peers as friends and that mutual influence between stable friends did not account for similarity. The next question is why proactively aggressive children select each other as friends. Two possibilities have been suggested in the literature and have been labeled the social default and social choice explanations (Cairns & Cairns, 1991; Dishion, Andrews & Crosby, 1995). According to a social default explanation, affiliation between two proactively aggressive children can be the result of

rejection by the other group members. According to the social choice explanation, proactively aggressive children voluntarily affiliate with peers who are also proactively aggressive. As observed by Snyder, Horsch and Childe (in press) with aggressive preschoolers, they might select social niches that provide them the best fit by optimizing social reinforcement.

These two hypotheses can be tested further with the contrived play groups methodology in future research using groups of unfamiliar peers rather than familiar peers (as in the current study) and subsequently observe their behavior over a series of sessions as friendships emerge. Such a design would allow us to observe the formation and development of friendship with respect to specific patterns of social-interactive behaviors. Finally, future studies addressing the quality and stability of proactively aggressive children's friendship will help us to understand to what extent these friendships contribute to the maintenance of aggressive behavior and to the development of new forms of antisocial behavior.

#### References

- Atkins, M. S., & Stoff, D. M. (1993). Instrumental and hostile aggression in childhood disruptive behavior disorders. *Journal of Abnormal Child Psychology*, 21, 165-178.
- Berndt, T. J. (1988). The nature and significance of children's friendship. In Ross-Vasta (Ed.), *Annals of Child Development* (Vol. 5, pp. 155–186). Greenwich: Jai Press.
- Berndt, T. J., & Keefe, K. (1995). Friends' influence on adolescents' adjustment to school. *Child Development*, 66, 1312–1329.
- Billy, J. O. G., Rodgers, J. L., & Udry, J. R. (1984). Adolescent sexual behavior and friendship choice. *Social Forces*, 62, 653-678.
- Bukowski, W. M., & Hoza, B. (1989). Popularity and friendship: Issues in theory, measurement, and outcome. In T. J. Berndt & G. W. Ladd (Eds.). *Peer relationships in child development* (pp. 15–45). New York: Wiley.
- Bukowski, W. M., & Newcomb, A. F. (1993). Interpersonal similarity in the development and stability of adolescent friendship relations. Unpublished manuscript, Concordia University.
- Cairns, R. B., & Cairns, B. D. (1991). Social cognition and social networks: A developmental perspective. In D. J. Pepler & K. H. Rubin (Eds.), *The development and treatment of childhood aggression* (pp. 249–278). New Jersey: Erlbaum.
- Cairns, R. B., & Cairns, B. D., Neckerman, H.J., Gest, S. D., & Gariépy, J.-L. (1988). Social networks and aggressive behavior: Peer support or peer rejection? *Developmental Psychology*, 24, 815–823.
- Cohen, J. M. (1977). Sources of peer group homogeneity. Sociology of Education, 50, 227-241.
- Coie, J. D., Dodge, K. A., Cillessen, A. H. N., & Hubbard, J. A. (1994, July). *Children's aggression in Dyadic peer relationships*. Paper presented in the symposium 'Aggression and relationships' (A. H. N. Cillessen et W. M. Bukowski, chairs) at the Biennial Meeting of the International Society for the Study of Behavioral Development, Amsterdam, The Netherlands.
- Coie, J. D., & Kupersmidt, J. B. (1983). A behavioral analysis of emerging social status in boys' groups. Child Development, 54, 1400-1416.
- Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development*, 67, 993–1002.
- Dishion, T. J., Andrews, D. W., & Crosby, L. (1995). Antisocial boys and their friends in early adolescence: Relationship characteristics, quality, and interactional processes. *Child Development*, 66, 139-151.
- Dishion, T. J., Capaldi, D., Spracklen, K. M., & Li, F. (1995). Peer ecology of male adolescent drug us. *Development and Psychopathology*, 7, 803–824.
- Dodge, K. A. (1983). Behavioral antecedents of peer social status. *Child Development*, 54, 1386–1399.

- Dodge, K. A. (1991). The structure and function of reactive and proactive aggression. In D. J. Pepler & K. H. Rubin (Eds.) The development and treatment of childhood aggression (pp. 201–218). Hillsdale, NJ: Erlbaum.
- Dodge, K. A., & Coie, J. D. (1987). Social-information-processing factors in reactive and proactive aggression in children's peer groups. Journal of Personality and Social Psychology, 53, 1146-1158.
- Dodge, K. A., Coie, J. D., Pettit, G. S., & Price, J. M. (1990). Peer status and aggression in boys' groups: Developmental and contextual analyses. Child Development, 61, 1289-1309.
- Eiser, J. R., Morgan, M., Gammage, P., Brooks, N., & Kirby, R. (1991). Adolescent health behavior and similarity-attraction: Friends share smoking habits (really), but much else besides. British Journal of Social Psychology, 30, 339–348.
- Epstein, J. L. (1989). The selection of friends: changes across the grades and in different school environments. In T. J. Berndt & G. W. Ladd (Eds.), Peer relationships in child development (pp. 158-187). New York: Wiley.
- Fisher, L. A., & Bauman, K. E. (1988). Influence and selection in the friend-adolescent relationship: Findings from studies of adolescent smoking and drinking. Journal of Applied Social Psychology, 18, 289–314.
- Glass, G. V., & Hopkins, K. D. (1984). Statistical methods in education and psychology (2nd ed.). New Jersey: Prentice-Hall.
- Hartup, W. W. (1992). Friendship and their developmental significance. In H. McGurk (Ed.), Childhood social development (pp. 175-205). Hove, England: Erlbaum.
- Kandel, D. B. (1978). Homophily, selection, and socialization in adolescent friendships. American Journal of Sociology, 84, 427-436.
- Poulin, F., & Boivin, M. (1996). The role of proactive and reactive aggression in the formation and the development of friendships in boys. Manuscript submitted for publication, Universite Laval, Quebec.
- Price, J. M., & Dodge, K. A. (1989). Reactive and proactive aggression in childhood: Relations to peer status and social context dimensions. Journal of Abnormal Child Psychology, 17, 455-471.
- Rodgers, J. L., Billy, J. O. G., & Udry, J. R. (1984). A model of friendship similarity in mildly deviant behaviors. Journal of Applied Social Psychology, 14, 413-425.
- Rubin, K. H., & Asendorpf, J. B. (1993). Social withdrawal, inhibition, and shyness in childhood. Hillsdale, NJ: Erlbaum.
- Rubin, K. H., Lynch, D., Coplan, R., Rose-Krasnor, L., & Booth C. L. (1994). 'Birds of a feather . . . .': Behavioral concordance and preferential personal attraction in children. Child Development, 65, 1778–1785.
- Snyder, J., Horsch, E., & Childe, J. (in press). Peer relationships of young children: Affiliative choices and the shaping of aggressive behavior. Child Clinical Psychology.
- Straver, F. F., & Noel, J. M. (1986). The prosocial and antisocial functions of preschool aggression: An ethological study of triadic conflict among young children. In C. Zahn-Waxler, E. M. Cummings and R. Iannotti (Eds.), Altruism and aggression: Biological and social origins (pp. 107-131). Cambridge: Cambridge University Press.
- Sullivan, H. S. (1953). The interpersonal theory of psychiatry. New York: Norton.
- Urberg, K. A., Halliday-Scher, K., & Tolson, J. M. (1991, April). Similarity between adolescent best friends. Paper presented at the biennial meeting of the Society for Research in Child Development, Seattle, WA.
- Youniss, J. (1980). Parents and peers in social development: A Sullivan-Piaget perspective. Chicago: University of Chicago Press.

#### Notes

- 1. Children without friends were statistically not different from children with one or more friends on the classroom peer nominations thus indicating that children without friends were not atypical with respect to children with one or more friends.
- 2. More than two-thirds of the friendship dyads identified in the play group were also identified as friends in the classroom. This suggests that friendship was stable from the classroom context to the play group context. Of the remaining third, the majority (78%) had a non-reciprocal friendship relation (A chose B as liked most but B did not choose A).

3. Boys without friends were statistically not different from boys with one or more friends on the play group peer ratings and observed behaviors.

4. Given the correlation observed between proactive aggression and reactive aggression (r = .47), partial correlations were also computed controlling for one type of aggression while looking at correlations for the other type. Controlling for subject's reactive aggression score, the partial correlation between boys' proactive aggression and the proactive aggression of their friends was .39 (p < .01) and the partial correlation between boys' proactive aggression and the proactive aggression of their non-friend peers was -.12 (ns). Similar correlations were computed for reactive aggression controlling for proactive aggression. These correlations were respectively -.12 (ns) and .14 (ns). The results of the partial correlations are consistent with the zero-order correlations in that similarity between the boys and their friends is only the case of proactive aggression.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.