

The Role of Proactive and Reactive Aggression in the Formation and Development of Boys' Friendships

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This study tested the hypothesis that friends are more similar in proactive aggression than in reactive aggression. Interpersonal processes that may account for this similarity (i.e., selection and mutual influence) were also examined. In the fall and spring of the school year, the friendships of 185 4th-, 5th-, and 6th-grade boys were identified. Proactive and reactive aggressive behavior were assessed with a teacher-rating instrument for each boy. The results support the general hypothesis and suggest that proactively aggressive boys tend to select proactively aggressive peers as friends; however, mutual influence between stable friends does not appear to account for similarity. These findings are discussed within the framework of G. R. Patterson, J. B. Reid, and T. J. Dishion's (1992) theory of antisocial behavior.

Association with deviant peers is considered one of the strongest correlates of problem behavior in adolescence (Coie, Terry, Zakrski, & Lochman, 1995; Elliot, Huizinga, & Ageton, 1985; Patterson & Dishion, 1985). For instance, friends are similar to one another in substance use (Dishion, Capaldi, Spracklen, & Li, 1995; Eiser, Morgan, Gammage, Brooks, & Kirby, 1991; Fisher & Bauman, 1988), and delinquency (Jussim & Osgood, 1989; Kandel, 1978). According to Patterson, Reid, and Dishion (1992), this phenomenon begins in childhood with a tendency among antisocial boys to associate with other antisocial boys, a view supported by empirical studies showing that friends exhibit similar levels of aggression during childhood (Boivin & Poulin, 1993; Bukowski & Newcomb, 1993; Cairns, Cairns, Neckerman, Gest, & Gariépy, 1988; Dishion, Andrews, & Crosby, 1995; Kupersmidt, DeRosier, & Patterson, 1995).

Boivin and Vitaro (1995) have found that aggressive boys associated with other aggressive boys were more likely to maintain their aggression over time. In contrast to aggressive boys who were not involved in a peer cluster, these aggressive boys were also less likely to be rejected and victimized by peers. In other words, not all aggressive boys are rejected by their peers. Rather, a majority of them are involved in peer affiliations that may perpetuate or even promote aggression. These relationships could not only support and reinforce aggression-related behavior, norms, and values, but they could also provide training ground for antisocial acts,

offer protection from out-group coercion attempts, and ensure the strategic alliances through which aggressive children might gain access to resources by coercive means.

The above discussion emphasizes the instrumental, functional, and proactive nature of aggressive behavior rather than its hostile facet, thus underlining the need for finer distinctions among aggressive behaviors. To the present day, studies of similarity between friends have adopted a general and nondifferentiated conception of aggression, neglecting important distinctions regarding the nature of certain types of aggressive behaviors (Dodge & Coie, 1987; Hartup, 1974; Pulkkinen, 1987). Dodge and Coie have stressed the relevance of distinguishing reactive aggression, an impulsive and hostile act displayed in response to a perceived threat or provocation, from proactive aggression, a nonprovoked aversive means of influencing another, usually defined as goal directed with intent to harm and dominate. Because it may serve social goals and strategic alliances, proactive aggression is more likely to be associated with the formation and the development of friendships than is reactive aggression, which is hostile by definition.

The validity and utility of the distinction between proactive and reactive aggression with respect to individual differences is supported by at least two sets of empirical findings. First, at least one confirmatory factor analysis of Dodge and Coie's (1987) rating scale assessing proactive and reactive aggression showed that a two-factor model provided a better fit to the data than a one-factor model, although the latent factors were highly correlated (Poulin & Boivin, in press). Second, each type of aggression presents a distinct, and theoretically consistent, pattern of relations with relevant cognitive, behavioral, and peer-status dimensions. Proactively aggressive children have been shown to attach a positive value to the use of aggressive behavior when dealing with conflict resolution and peer-group entry (Crick & Dodge, 1996). Reactively aggressive children were found to be characterized by hostile attributional biases and deficits when interpreting social cues (Dodge & Coie, 1987). Proactive aggression has been positively associated with leadership and sense of humor (Dodge & Coie, 1987; Poulin & Boivin, in press), whereas reactive aggression has

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been positively related to victimization by peers (Poulin & Boivin, in press; Schwartz et al., 1998), anger and fighting (Price & Dodge, 1989), attention problems and impulsiveness (Dodge, Lochman, Harnish, Bates, & Pettit, 1997), as well as disruptive behavior in school (Brown, Atkins, Osborne, & Milnamow, 1996; Waschbusch, Willoughby, & Pelham, 1998). Finally, proactive aggression can be related to peer acceptance, whereas reactive aggressive behaviors are systematically associated with peer rejection (Dodge et al., 1997; Poulin & Boivin, in press; Price & Dodge, 1989).

Considered together, the above studies suggest that proactive aggression has an instrumental value in the peer group. This instrumental value could take the form of a planned joint action aimed at dominating peers outside one's group to gain access to specific resources. If this were the case, between-friend similarity in proactive aggression is likely. However, between-friend similarity is less probable for reactive aggression, as it appears to translate more systematically into interpersonal difficulties. Reactive aggression is impulsive, suggesting that it is less likely to be used in the context of premeditated action.

Two alternative hypotheses can be expressed regarding the origin of similarity between friends. On the one hand, the interpersonal attraction theory suggests that between-friend similarity is explained by a *mutual selection* process, according to which similarity in behavior, attitude, or value antecede friendship (Byrne, 1971; Newcomb, 1961). A corollary to this is the *dissociation* process, which refers to the possibility that a lack of similarity between friends leads to the breakup of the friendship (Fisher & Bauman, 1988). Alternatively, Cairns's (1979, 1986) view is that children's interpersonal relationships are characterized by a strong propensity to synchronize their activities, leading to an increase in between-friend similarity over time. This process of *mutual influence* refers to the tendency in individuals to adopt the behaviors, attitudes, or values of those with whom they frequently interact. These processes were found to contribute jointly to similarity among friends with respect to delinquency in adolescence and aggression in childhood (Bukowski & Newcomb, 1993; Cairns & Cairns, 1994; Cohen, 1977; Kandel, 1978; Rodgers, Billy, & Udry, 1984).

There is reason to speculate that these friendship processes may especially apply to proactive aggressive behavior as compared with reactive aggressive behavior. A mutual selection based on similarity in proactive aggression could operate because proactively aggressive boys attach a positive value to the use of this behavior (Crick & Dodge, 1996). Alternatively, a disparity (i.e., a lack of similarity) in the use of proactive aggression within a friendship dyad could lead to the termination of friendship (i.e., dissociation). Mutual influence may also occur between proactively aggressive boys. To the extent that proactive aggression has an instrumental value and is likely to be acquired and controlled by external reinforcements (Bandura, 1973, 1983), friends could provide powerful reinforcements for this kind of behavior (Dishion, Spracklen, Andrews, & Patterson, 1996). Reinforcement by peers, especially if reciprocated, could lead to an increase in between-friend similarity in proactive aggressive behavior. In contrast to the functional value of proactive aggression, the absence of positive value attached to the use of reactive aggression, its impulsive nature, and the general pattern of interpersonal difficulties associated with those kinds of aggressive behaviors suggest that these

interpersonal processes are less likely to characterize this form of aggression.

The aim of the present study was to evaluate whether friends were similar in proactive aggression and in reactive aggression. On the basis of the theoretical and empirical arguments presented above, we hypothesized that between-friend similarity would be observed only for proactive aggression and not for reactive aggression. Using a longitudinal design allowing for specific patterns of change over time, we also examined interpersonal processes (i.e., selection and mutual influence) that may contribute to this similarity. These hypotheses were tested among 4th-, 5th-, and 6th-grade boys. We examined possible age effects, although no changes were expected in the pattern of between-friend similarity for boys during that period (see Cairns et al., 1988). Girls were not included in this study because previous research has shown that they tend to express their aggression through means that are intended to manipulate the social structure or damage another's self-esteem (Crick & Grotpeter, 1995; Galen & Underwood, 1997; Lagerspetz, Bjorkvist, & Peltonen, 1988).

Method

Participants

One hundred eighty-five 4th-, 5th-, and 6th-grade Caucasian boys (mean age = 128.40 months) from 20 classrooms in five different French-speaking schools located in a middle-class socioeconomic neighborhood (Ministère de l'Éducation du Québec, 1992) participated in this study. Seventy-eight percent of the parents provided written permission for their child to participate in this study. The number of boys enlisted in each classroom varied from 9 to 16 ($M = 12.1$). Of them, the number of participating boys in each classroom varied from 6 to 14 ($M = 9.45$). One hundred forty-nine boys were interviewed in the school during the fall (November; T1). More boys were recruited during the school year ($n = 36$), and all the 185 boys were also interviewed during the spring (May; T2). At both T1 and T2, boys participated in an individual interview in which friendships were identified, and teachers were asked to fill out questionnaires on proactive and reactive aggressive behavior.

Teacher Ratings of Proactive and Reactive Aggressive Behavior

This questionnaire includes three items assessing proactive aggressive behavior (e.g., "get other to gang up on a peer") and three items assessing reactive aggressive behavior (e.g., "overreact angrily to accidents"; Dodge & Coie, 1987). Poulin and Boivin (in press) reported a confirmatory factor analysis supporting the two-factor model, although these two factors were substantially correlated. The teacher was asked to fill out the questionnaire for each boy in his or her classroom who was involved in the project. Teachers responded to items on a Likert scale ranging from 1 (*never*) to 5 (*almost always*) that concerned how frequently the statement applied to a particular child. Proactive and reactive aggressive behavior scores were computed as the mean item rating. Internal consistency of the two subscales was high (Cronbach's $\alpha = .91$ and $.91$, respectively). The intercorrelation between the two subscales was $.75$ at T1 and $.71$ at T2. The intercorrelations between the items ranged from $.73$ to $.85$ for proactive aggression and from $.73$ to $.81$ for reactive aggression.

Identification of Dyadic Relationships

During the individual interview, each boy was asked to nominate three best friends among his classmates who participated in the project. For

ethical reasons, no information was gathered on children whose parents denied consent. Thus, these children were not included in the pool of nominees for the choice of the three best friends. Therefore, the choice of the best friends might have been constrained for some participants because their actual best friend(s) were not participating in the study. Although the participants were allowed to nominate boys or girls, only the choices directed toward other boys were used, which constituted 95% of all the choices made. These nominations were used to identify reciprocal choices (the classmate nominated had also nominated the target child as a best friend), nonreciprocal choices (the classmate nominated had not nominated the target child as a best friend), and nonchoices (the classmates that were not nominated as best friends by the target child). Because each boy made three nominations, he could obtain (a) 0–3 reciprocal choices; (b) 0–3 nonreciprocal choices, and (c) $n - 3$ nonchoices (n = number of male classmates). The identification of dyadic relations was done following this procedure at T1 and T2. At T1, 35% of the boys had no reciprocal choices, 23% had 1, 28% had 2, and 14% had 3. Further, 44% of the boys had no nonreciprocal choices, 29% had 1, 18% had 2, and 9% had 3. The average number of nonchoices was 6.21 ($SD = 2.37$). At T2, 23% of the boys had no reciprocal choices, 27% had 1, 32% had 2, and 18% had 3. Further, 34% of the boys had no nonreciprocal choices, 29% had 1, 24% had 2, and 13% had 3. The average number of nonchoices was 6.31 ($SD = 2.35$).

Identification of Comparison Groups

A deficiency often noted in studies focusing on within-dyad similarity is the lack of an appropriate comparison group (Glass & Polisar, 1987). For similarity to be considered a specific characteristic of friendship, similarity observed within friendship dyads must be higher than that observed within nonfriend dyads from the same classroom. However, because each boy can have several reciprocal choices, several nonreciprocal choices, and several nonchoices, the dyads are not independent observations, as the boy's behavior score is considered in each dyad in which he is involved. To circumvent this problem, we used the individual rather than the dyad as the unit of analysis and adopted a within-subject design; the similarity observed between the boys and their reciprocal choices was compared to the similarity observed between these same boys and their nonreciprocal choices and the similarity between them and their nonchoices. Specifically, three scores were computed for each boy: (a) the proactive aggression score of his reciprocal choice (or, for the boys who had more than one reciprocal choice, the mean score of proactive aggressive behavior of these peers), (b) the score (or the mean score) of proactive aggressive behavior of his nonreciprocal choice(s), and (c) the mean score of proactive aggressive behavior of his nonchoices. Three similar scores were also computed for reactive aggression, resulting in a total of six scores for each boy.

Results

Between-Friend Similarity With Respect to Proactive and Reactive Aggression

In this first series of analyses, only the data collected at T2 were considered because of the larger sample size ($n = 185$) and because the boys had more time to experience the peer group (i.e., in May the boys had been with their classmates for 8 months). The mean scores of proactive aggressive behavior and reactive aggressive behavior across the whole sample were, respectively, 1.28 ($SD = 0.60$) and 1.69 ($SD = 0.89$). The distribution of proactive aggression scores was positively skewed (skewness = 2.83; kurtosis = 9.32). Biases were also found in the distribution of reactive aggression scores (skewness = 1.49; kurtosis = 2.03).¹

Given that proactive and reactive aggression scores were not normally distributed, the Goodman-Kruskal's index of relation

(gamma) was used as an index of between-friend similarity (Siegel & Castellan, 1988).² The value of gamma ranges between -1 and 1 , and it is interpreted as a Pearson correlation coefficient. A high positive gamma reflects a high similarity between the participants and their peers for a specific type of relationship.

Gammas were computed between the participant's proactive aggressive behavior score and his peers' proactive aggressive behavior scores for each type of relation (reciprocal, nonreciprocal, and nonchoice). Similar analyses were carried out for reactive aggressive behavior.

Because the purpose was to compare the gammas observed for each type of relation, only boys with at least one reciprocal choice, one nonreciprocal choice, and one nonchoice were included in this first set of analyses. Eighty-seven boys met this criterion. These boys did not differ from the rest of the sample in terms of reactive ($M = 1.69$ vs. $M = 1.69$) or proactive ($M = 1.31$ vs. $M = 1.26$) aggressive behavior.

The gammas between the proactive and reactive aggressive scores of the participants and the proactive and reactive aggressive scores of their peers for each type of relationship are presented in Table 1. The boys' proactive aggressive behavior was positively related to the proactive aggressive behavior of their reciprocal choices and of their nonreciprocal choices but was not related to the proactive aggressive behavior of their nonchoices. The gamma for reciprocal choices was significantly higher than the gammas for nonreciprocal choices, $t(86) = 2.55, p < .01$, and for nonchoices, $t(86) = 5.08, p < .001$. Furthermore, the gamma for nonreciprocal choices was higher than the gamma for nonchoices, $t(86) = 5.08, p < .001$. The reactive aggressive behavior of the participants was positively, although weakly, related to the reactive aggressive behavior of their nonreciprocal choices. However, a participant's score was not related to the score of his reciprocal choices or to the score of his nonchoices. Furthermore, there were no significant differences between the three gammas computed for reactive aggressive behavior. Finally, the between-friend similarity (i.e., the gamma computed for the reciprocal choices) was signif-

¹ Although the focus of this study was on boys' friendships and aggressive behavior, we also collected teachers' ratings of girls. Eighty-five percent of the girls had a proactive aggression score of 1 (*never*) and 96% a score of 2 (*rarely*) or lower. Sixty-eight percent of them presented a reactive aggression score of 1, and 91% a score of 2 or lower. Conversely, 72% of the boys had a proactive aggression score of 1, and 82% a score of 2 or lower. Forty-four percent of them presented a reactive aggression score of 1, and 72% a score of 2 or lower. These results confirm the view that girls are less likely to use overt means to express their aggression.

² The gamma statistic is a measure of association developed for non-normally distributed data that can be used without normalizing the distribution through score transformation. Analyzing and reporting aggression scores in their original scale (i.e., raw scores on a 1–5-point scale) seemed indicated in order to give the reader a sense of the level of seriousness of the aggressive behavior problem. However, we also computed normalized aggression scores (e.g., through square root transformation) and carried out all the analyses reported here using Pearson correlation. All the significant relationships and significant differences revealed by the gamma statistic were replicated except for the role of the selection process in the between-friend similarity on proactive aggressive behavior. Specifically, the correlation between the boys and their new friends and the correlation between the same boys and their continued nonfriends at T1 were only marginally different ($p < .10$).

Table 1
Gamma (γ) and Corresponding Partial Correlations Between Participants' Aggression Scores and Peers' Mean Aggression Scores for Each Type of Relation

Aggressive behavior	Type of relation		
	Nonchosen	Nonreciprocal	Reciprocal
Proactive			
γ	.01	.37*	.63**
Partial r	-.04	-.01	.40*
Reactive			
γ	.10	.29*	.17
Partial r	.12	.20	.01

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

icantly higher for proactive aggression than for reactive aggression, $t(86) = 8.81, p < .001$.

As reported by other investigators (e.g., Dodge & Coie, 1987), a substantial empirical overlap is observed between the teacher ratings of proactive and reactive aggression. One strategy to verify if this overlap challenges the pattern of relationships observed among friends' aggression scores is to partial out the effects of one form of aggression on the other. Specifically, partial correlations were computed between a participant's proactive aggressive behavior score and his peers' proactive aggressive behavior score for each type of relation (reciprocal, nonreciprocal, and nonchoice), controlling for a participant's reactive aggressive behavior score. Similar correlations were computed between the participant's reactive aggressive behavior score and his peers' reactive aggressive behavior score for each type of relation, controlling for the participant's proactive aggressive behavior score. These partial correlations are presented in Table 1 and confirmed the findings observed with the gammas.

In addition, we also tested whether the between-friend similarity effects previously reported vary as a function of the boy's grade level (i.e., grade-level interaction; Cohen & Cohen, 1983). We entered the following predictors in a series of hierarchical regression analyses predicting the peers' proactive aggression score: the boy's proactive aggression score (Step 1), the boy's grade level (Step 2), and the interaction between the boy's proactive aggression score and his grade level (Step 3). We computed separate regression models for each type of relation (reciprocal, nonreciprocal, and nonchoice). Similar analyses were carried out for reactive aggression. No age interactions were found either for proactive or reactive aggressive behavior, suggesting that the observed between-friend similarity effects held for 4th-, 5th-, and 6th-grade boys.

In the next series of analyses, we evaluated whether the reciprocal choices of proactively aggressive boys were more proactively aggressive than the nonreciprocal choices or the nonchoices of these same boys. Two groups of boys were formed on the basis of proactive aggressive behavior. Participants higher than the 85th percentile were considered proactively aggressive ($n = 11$; $M = 2.88$), whereas the rest were considered nonaggressive ($n = 76, M = 1.08$). The peer proactive aggression scores were submitted to a 2 (aggression status: proactively aggressive, non-aggressive) \times 3 (type of choice: reciprocal choices, nonreciprocal

choices, nonchoices) univariate analysis of variance (ANOVA), with the type of choice treated as a within-subject factor. We conducted the same analyses for reactive aggressive behavior. Nine boys were classified as reactively aggressive (i.e., higher than the 85th percentile, $M = 3.85$), and 78 were classified as nonaggressive ($M = 1.44$). Five boys appeared simultaneously in the proactively aggressive group and in the reactively aggressive group, which is not surprising given the substantial correlation observed between the two forms of aggression.

Means and standard deviations of aggression scores (proactive and reactive) of the participants' peers are shown in Table 2. Regarding proactive aggressive behavior, the ANOVA indicated a significant difference with respect to the type of choice, $F(2, 170) = 5.78, p < .01$, as well as a significant Type of Choice \times Aggression Status interaction, $F(2, 170) = 7.33, p < .001$. Simple effect tests revealed that the reciprocal choices of proactively aggressive boys were more proactively aggressive than either their nonreciprocal choices or their nonchoices, $F(2, 170) = 7.04, p < .001$. Reciprocal choices of proactively aggressive boys were also more proactively aggressive than the reciprocal choices of nonaggressive boys, $F(1, 85) = 23.76, p < .001$. No significant differences were observed for reactive aggressive behavior.

In sum, proactive aggressive boys had friends (i.e., reciprocal links) who were more proactively aggressive than their nonreciprocal choices and their nonchoices, thus indicating a tendency in proactively aggressive boys to associate with proactively aggressive peers. This pattern of results was consistent with the correlational analyses, indicating a general tendency for friends—and only for friends—to be similar with respect to proactive aggressive behavior. As expected, this pattern of between-friend similarity was specific to proactive aggression, as it was not found for reactive aggressive behavior.

Interpersonal Processes

Between-friend similarity in aggression could be explained by selection and by mutual influence processes. The study of these specific processes required an examination of the friendship trajectories over time (i.e., friendship nominations of boys who participated at both T1 and T2, $n = 149$).

Selection. The between-friend similarity in proactive aggressive behavior could be attributed to the mutual selection of boys who were similar prior to the formation of their friendship. The

Table 2
Means and Standard Deviations of Peers' Aggressive Behaviors (Proactive and Reactive) by Participants' Behavioral Status and by Type of Relation

Aggressive behavior	n	Aggressive			n	Nonaggressive		
		NC	NR	R		NC	NR	R
Proactive	11				76			
M		1.22	1.11	1.77		1.33	1.16	1.18
SD		0.19	0.17	0.76		0.36	0.46	0.54
Reactive	9				78			
M		1.73	1.93	1.98		1.76	1.50	1.57
SD		0.32	0.76	0.84		0.45	0.70	0.77

Note. NC = nonchosen; NR = nonreciprocal; R = reciprocal.

evaluation of the selection process required the identification of dyads of boys who did not select each other at T1 (i.e., nonchoices) but became friends at T2 (reciprocal choices). Fifty-five boys had at least one peer with whom the relationship followed this course. These boys did not differ from the rest of the sample with respect to reactive aggression ($M = 1.69$ vs. $M = 2.01$) and proactive aggression ($M = 1.28$ vs. $M = 1.49$). Two scores were calculated for each of these boys: (a) the proactive aggression score at T1 of their peer who was a nonchoice at T1 and a reciprocal choice at T2 (or the mean score of proactive aggression of these peers if there was more than one) and (b) the mean proactive aggression score at T1 of the peers who were a nonchoice at both T1 and T2. These peers were identified respectively as "new friends" and "continued nonfriends." The same scores were also computed at T2. Gammas were then calculated at both T1 and T2 between the boys' and the new-friends' proactive aggression score and between the boys' and the continued nonfriends' proactive aggression scores. Similar analyses were carried out for reactive aggressive behavior.

For proactive aggressive behavior, the gamma between the boys and their new friends was .60 ($p < .01$) at T1, in contrast to a gamma of .14 (*ns*) between the same boys and their continued nonfriends at T1. These two gammas differed statistically, $t(54) = 3.79$, $p < .01$. At T2, the gammas were respectively .42 ($p < .01$) and .01 (*ns*), a difference that was also statistically significant, $t(54) = 3.79$, $p < .01$. The gammas for reactive aggressive behavior were .22 ($p < .05$) and .16 (*ns*) at T1, .16 (*ns*) and $-.17$ (*ns*) at T2, respectively. Thus, boys who established a new friendship at T2 were already similar in proactive aggressive behavior at T1, especially when these dyads were compared with the continued nonfriends. These new friendships tended to maintain this similarity over time (i.e., at T2). This pattern of results was not found for reactive aggressive behavior.

Dissociation. Another way to examine the selection process is to look at dissociation among dissimilar friends. The dissociation process refers to the possibility that an absence of similarity between friends will lead to a termination of the friendship.

To test this hypothesis, we identified boys who had at least one discontinued friendship (i.e., reciprocal friend at T1 but nonchosen at T2) and at least one persisting friendship (i.e., reciprocal friend at T1 and T2) and compared these two types of relationships on observed similarity at T1. Only 31 boys presented these two types of relationships simultaneously. These boys were more reactively aggressive ($M = 1.60$ vs. $M = 1.97$), $t(30) = -2.27$, $p < .05$, and more proactively aggressive ($M = 1.10$ vs. $M = 1.50$); $t(30) = -4.24$, $p < .001$, than the rest of the sample.

For proactive aggressive behavior, the gamma between the boys and their discontinued friends at T1 was .01 (*ns*), whereas the gamma between the boys and their continued friends at T1 was .81 ($p < .01$). These two gammas were significantly different, $t(30) = 6.05$, $p < .01$. For reactive aggressive behavior, these gammas were .21 (*ns*) and .01 (*ns*), respectively, and the difference between these two gammas was not significant. These results supported the dissociation hypothesis for proactive aggressive behaviors but not for reactive aggressive behaviors. In other words, the discontinued friendships were previously less similar in terms of proactive aggressive behavior than were the friendships that persisted.

Mutual influence. This process refers to the possibility of a mutual influence between friends over time; this influence results

in an increase in between-friend similarity over time. This hypothesis was tested among boys who had at least one persisting reciprocal relationship from T1 to T2. Eighty-two boys met this criterion. These boys did not differ from the rest of the sample with respect to reactive aggressive behavior ($M = 1.32$ vs. $M = 1.53$) and proactive aggressive behavior ($M = 1.73$ vs. $M = 2.09$). Two gammas, one for T1 and the other for T2, were calculated between the proactive aggression score of each participant and the proactive aggression score of his reciprocal choice (or, for the participants who had more than one reciprocal relationship that remained stable, the mean score of proactive aggressive behavior of their reciprocal choices). These gammas were, respectively, .67 ($p < .01$) at T1 and .60 at T2 ($p < .01$); these values were statistically equal. Similar analyses were conducted for reactive aggressive behavior. The gammas were .14 (*ns*) at T1 and .20 (*ns*) at T2. These two gammas did not differ statistically. In sum, there was no increase in between-friend similarity over time. Instead, persisting friendships maintained their levels of similarity in proactive aggressive behavior over time.

Discussion

Cairns et al. (1988) have reported that children involved in reciprocal friendships are more similar in terms of aggressive behaviors than those partly associated in a unilateral relation, a pattern that they interpreted as a tendency among aggressive children to affiliate with other aggressive peers. The purpose of the present study was to investigate this phenomenon further by distinguishing proactive aggressive behavior from reactive aggressive behavior, with the view that between-friend similarity would be observed only for the former, and by specifically examining the interpersonal processes that could account for this similarity (i.e., selection and mutual influence).

The participants in this study were selected from a normative population. Among the boys who displayed aggressive behaviors, none exhibited severe conduct problems, as these students are removed from regular mainstream classrooms and receive special education services. In the following discussion, we assumed that the affiliation processes observed with the present sample could be generalized to higher risk individuals. However, future evaluation with an at-risk population is warranted.

As expected, evidence for between-friend similarity was found for proactive aggressive behaviors and not for reactive aggressive behaviors. Specifically, proactively aggressive boys had friends who were more proactively aggressive than their nonfriends and the friends of the nonaggressive boys. This was not the case for reactively aggressive boys. Thus, in contrast to reactive aggression, proactive aggression was associated with the emergence of friendships, a pattern of result consistent with the view that the two types of aggressive behaviors play a different role in the coordination of social interactions and social relations among boys. Proactive aggressive behaviors appear instrumental in shaping the social context in which this class of behavior could be reinforced (Boivin & Vitaro, 1995). These associations among aggressive boys could perhaps provide some form of deviancy training over time (Dishion et al., 1996). Reactive aggression was clearly not as socially functional.

Between-friend similarity in proactive aggressive behaviors could hypothetically be explained by mutual selection and mutual

influence processes. Evidence for mutual selection came from two sources. First, in contrast to those who did not establish a friendship, boys who became friends over time were similar in proactive aggression prior to the formation of their friendship (i.e., their mutual selection at T2). No such pattern was found for reactive aggressive behaviors, suggesting that the new reciprocal relationships were formed specifically on the basis of proactive aggression similarity.

A corollary of the selection process is that dissimilarity leads to dissociation among friends. Hence, an examination of dissociation patterns provided a second source of information concerning the selection hypothesis. The results of this analysis were also consistent with the selection process. In contrast to persisting friendships, friendships that broke up (i.e., dissociated) involved boys that were previously dissimilar in proactive aggressive behavior. Again, no such pattern was found for reactive aggression, indicating that between-friend dissimilarity in proactive aggression specifically forecasted the termination of these friendships. However, these results concerning dissociation should be interpreted cautiously because the sample of boys considered was small and slightly more aggressive than the rest of the sample. Finally, there was no evidence of a mutual influence process, as there was no increase in between-friend similarity over time.

According to Dodge (1991), experiences involving frequent exposure to aggressive tactics and their positive consequences, as well as endorsements of these tactics by the social environment, will positively reinforce the use of proactive aggressive behaviors over time. A coercive family environment could not only provide these experiences but could also promote these behavior tendencies through negative reinforcements (Patterson et al., 1992). According to Patterson et al., aggression learned in the coercive family system will generalize to the peer system and lead to problematic peer relationships, a proposition that has been substantiated by the often reported positive correlation between aggression and peer rejection (Asher & Coie, 1990; Coie, Belding, & Underwood, 1988).

However, as Cairns et al. (1988) pointed out, peer rejection or dislike does not necessarily translate into outright marginalization. This seemed to be especially true for boys displaying proactive aggressive behaviors, as they became increasingly associated with other boys also displaying these behaviors. These aggressive boys seemed to select each other actively on the basis of proactive aggression, as if there was a "niche picking" type of assortment going on rather than a selection by default, in a context of limited social opportunities due to peer rejection (i.e., in a limited "shopping" situation, as suggested by Patterson et al., 1992). For instance, between-friend similarity was not unique to friendship relations (i.e., reciprocal choices), as nonreciprocal dyads were significantly more similar than nonchoice dyads, indicating a general trend toward similarity seeking with respect to proactive aggression.

The results concerning proactive aggression are also consistent with the process of shopping described by Dishion and colleagues (Dishion, Patterson, & Griesler, 1994; Dishion, Patterson, Stoolmiller, & Skinner, 1991), which refers to the tendency to seek social settings providing the maximum level of social reinforcement for the minimum social energy. This activity takes place randomly during peer interactions, until two children "hit it off" on the basis of common interests. For antisocial boys, these common

interests could be disruption of the classroom or ganging up on other children, as they were commonly observed in proactively aggressive boys (Dodge & Coie, 1987).

Because proactively aggressive boys attach a positive value to aggressive behavior (Crick & Dodge, 1996), their friendships could create an environment that promotes the use of these behaviors. According to Dishion et al. (1994), over time and following numerous interactions, the boys involved in these friendships would resort more to behaviors that are reinforced by their partners, in this case proactive aggressive behaviors, and less to those that are punished or ignored. Thus, a mutual influence process is expected between friends once the relationship is established. However, no evidence in support of the mutual influence hypothesis was found in the present study, perhaps because between-friend similarity was already high at the beginning of the school year. Nevertheless, the similarity observed between persisting friends on proactive aggression did not decrease over the year. One could argue that mutual reinforcement of proactive behavior among friends contributed to this stability. This interpretation is in line with the results of a study by Boivin and Vitaro (1995), which revealed that stability in aggression over time was associated with involvement in a peer network, especially when this network comprised other aggressive boys.

According to Patterson et al. (1992), affiliations between antisocial boys could orient the individual toward an antisocial adult career characterized by substance abuse, institutionalization for crimes or mental disorders, disrupted marriages, and unemployment. Because affiliations between aggressive boys appear to be based on proactive aggression rather than on reactive aggression, it is possible that these boys displaying proactive aggressive tendencies are more at risk for the types of social maladjustment described by Patterson et al. than are boys displaying reactive aggressive tendencies. This view is supported by Pulkkinen (1996), who observed that proactively aggressive males and females in early adolescence presented conduct problems in adolescence and were serious users of alcohol in adulthood, whereas reactively aggressive individuals were not. Furthermore, Vitaro, Gendreau, Tremblay, and Oligny (1998) recently found that proactive aggression in 12-year-old boys predicted delinquency, oppositional defiant disorder, and conduct disorders in midadolescence, whereas reactive aggression did not.

Even though they tend to be ostracized from the mainstream peer group during the childhood years, reactively aggressive youth remain vulnerable to a drift into the deviant peer group during later years. Consequently, movement into the deviant peer group would be more likely to result from repeated exclusions from other peer environments (i.e., selection by default) rather than an active mutual selection that is based on similar behavioral tendencies, as is the case for proactively aggressive children. Regardless of the mechanisms involved, reactive aggression also presents a clear risk for poor outcomes, especially because of its association with peer rejection, its impulsive nature, and the comorbidity with attention deficit hyperactivity disorder (Dodge et al., 1997). Quite possibly proactive aggression and reactive aggression may represent distinct pathways for antisocial outcomes. Clearly, longitudinal studies addressing the issue of the relative risk of these two forms of aggression, as well as the mechanisms involved, are needed.

From a more general point of view, these results provide additional empirical support for the construct validity of these two

forms of aggression. It is especially noteworthy that a distinct pattern of results was found between the two types of aggressive behaviors despite the high correlation between the two constructs. By and large, the results of the present study emphasize the utility of the distinction between reactive aggression and proactive aggression in unraveling some of the mechanisms underlying the development and maintenance of aggressive tendencies among boys. They also point to the importance of not discarding overlapping constructs on the sole basis of a high communality. Although parsimony should always be taken into account in scientific models, the utility of a construct also depends on its unique capacity in generating a distinct and theoretically consistent pattern of relations, which appears to be the case here.

The results of this study must be interpreted cautiously. Indeed, some caveats need to be considered. First, distinguishing between reactive aggressive and proactive aggressive behaviors is challenging. Consistent with previous studies, these two forms of aggression, as operationalized by Dodge and Coie's (1987) teacher-report instrument, overlapped substantially. This overlap may not only signify that a number of youth use both forms of aggression but may also signify that some behaviors may be both reactively aggressive and proactively aggressive. As discussed by Dodge and Coie, teachers usually witness only part of the aggressive sequences, generally the end. Thus, teachers are limited in their ability to distinguish between the two aggressive dimensions.

A second caveat is the exclusive examination of friendships in the school setting. This approach has some limitations, especially if the interest lies in friendships of aggressive children. Indeed, many of these boys maintain friendships with peers who live within the same neighborhood block and have met in unstructured, unsupervised activities (Dishion et al., 1995). It will be important to replicate the present findings by including friends who do not attend the same school as the target boy.

Another caveat of this study is the exclusive focus on boys' friendships. This decision was supported by the low rate of proactive and reactive aggression observed in girls. A growing literature suggests that girls use more relational and social means to inflict pain on someone (Crick & Grotpeter, 1995; Galen & Underwood, 1997; Lagerspetz et al., 1988). These forms of aggression could play a functional role in the social structure in the classroom. For instance, some girls tend to manipulate friendship patterns by gossiping and spreading rumors aimed at damaging others' reputations as well as by excluding a peer from a friendship group. The instrumental and planful nature of this form of aggression suggests that strong friendship bonds could facilitate its expression toward a third person (Bjorkqvist, Lagerspetz, & Kaukiainen, 1992), as we hypothesized for proactive aggression in boys. However, a recent study by Grotpeter and Crick (1996) indicated that this does not seem to be the case. Relationally aggressive children tend to behave aggressively toward their own friends, whereas overtly aggressive children tend to direct their aggression at peers outside the friendship. More information is clearly needed on the social function of these forms of aggression among girls.

In sum, this study provided a first empirical support for the hypothesis that proactively aggressive boys tend to affiliate more with proactively aggressive peers as friends. Future studies should be conducted to verify if this phenomenon can be reliably evaluated under different conditions of assessment (e.g., direct obser-

vation of aggressive behavior), in different social contexts (e.g., peer group in the neighborhood or experimental play groups), and with an at-risk population. Finally, more information is also needed on the friendship characteristics of aggressive children.

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