Dear Dr. Howe:

This cover letter describes how we addressed reviewers’ concerns about manuscript ID SODE-09-0006 entitled "Preschoolers’ Bistrategic Resource Control, Reconciliation, and Peer Regard."

We very much appreciated the reviewers’ positive remarks and your encouragement for possible publication in Social Development. We also recognize the concerns expressed by you and the reviewers and have made every effort to address them. We believe the revised manuscript is stronger for your input and appreciate the opportunity to resubmit for further consideration.

Editor’s Concerns

E1a) Need scaffolding on ethological perspective, prosocial and coercive resource control. 
To address this concern we added additional information to the abstract and introduction:

• To specify the study’s focus on resource control strategies, we added to the Abstract:

  p. 2: “Bistrategic resource control (e.g., Hawley, 2002) entails using both coercive and prosocial strategies in competition for resources. The present study sought to clarify whether bistrategic involves more than simply using both strategies some of the time.”

• To place resource control within the larger question of how social beings balance personal (i.e., agentic) and social needs, we added to the introduction:

  p. 3: “One of the enduring dilemmas for social species is balancing the need for both agentic and social resources (Deutsch, 1973; de Waal, 2000; Thibault & Kelly, 1952; von Neumann & Morgenstern, 1944). Even preschoolers confront this quandary, as the benefit of, say, controlling a given toy likely decreases when depriving a peer results in there being no one left to play with (Vaughn & Santos, 2007).

  Theory and research related to preschooler’s social dominance (defined as naturally occurring differences in resource control) suggest that preschoolers use a variety of strategies to control resources, including both coercive (e.g., aggression, threats) and prosocial strategies (e.g., cooperation, affiliation)...”

E1b) What does prosocial resource control add to pro-sociality per se? 
This is an important point and we thank you for highlighting it. To clarify what ‘resource control’ adds to traditional conceptions of prosociality we added the following:
p. 7: “Prosocial resource control was conceptualized broadly in terms of directly observed prosociality, defined as children interacting positively with each other, as gauged by mutual gaze, verbal interaction, and cooperation. This definition emphasizes the reciprocation of positive interaction and thus adds the reception of social resources to traditional definitions of prosociality emphasizing only exhibiting those behaviors that benefit others (see e.g., Eisenberg, Fabes, & Spinrad, 2006).”

E2a) Reconciliation - Is the PC vs. MC comparison as compelling as you suggest? → As you point out, the PC-MC (i.e., attracted pairs method) requires that both children were present during the MC period. Importantly, it also requires that they are separated, defined in physical (i.e., apart by a distance of approximately six feet or more), social (i.e., no noticeable communication or interaction), and temporal (at least one minute) terms (see ms, p. 13). We agree that a limitation of the method is the possibility that children may not be as physically close to each other in the MC as they were during the PC period, and have noted this in the discussion:

p. 34: “For reconciliation, future research should also examine whether the likelihood of reconciliation varies as a function of the postconflict observation period (e.g., 10 – 20 min), the distance separating children during the PC and MC, and the likelihood that either child is involved in social interactions with someone else (Aureli et al., 2002). What changes over time may be affordances such as time and distance rather than the likelihood of reconciliation per se.”

E2b) Also, isn't it relevant that many observational studies of children’s disputes have shown that arguments simply fizzle out? → This is an important point that informed our study’s design but, as you note, was not emphasized in the original ms. To make more explicit the distinction between conflicts that simply “fizzle out” (what we describe as “together outcomes”) and friendly affiliation after conflict-induced separation (i.e., “reconciliation”) we added:

pp. 8-9: “Most studies of preschoolers’ postconflict behavior have focused on the immediate outcomes of aggression such as separation or dispersal. For example, Sackin and Thelen (1984) studied peaceful associative outcomes to physically aggressive conflict among two groups of 5-year-old preschoolers. Conflict outcomes were coded dichotomously: Separate outcomes defined as being physically apart with no noticeable communication, and together outcomes as remaining in close proximity and interacting in a nonantagonistic manner. Sackin and Thelen’s (1984) results showed that, of 165 reported conflicts, 107 led to separation and 49 to together outcomes. Hartup, Laursen, Stewart, and Eastenson (1988) compared conflicts between friends and neutral associates among three groups of 3- to 5-year-old preschoolers. Conflict was defined in terms of ‘resistance to social influence,’ thus combining aggressive and non-aggressive conflict, as well as competitive and non-competitive conflict (for a review of conflict definition issues, see Shantz, 1987). Results showed that postconflict affiliation varied as a function of relationship type, with mutual friends significantly more likely than neutral associates to remain together after conflict.

Importantly, neither Sackin and Thelen (1984) nor Hartup et al. (1988) recorded whether affiliation occurred after initial separation, thereby risking underestimation of preschoolers’ postconflict affiliation. Further, neither study tested whether postconflict affiliation differed
statistically from affiliation during free play. This is a problem, of course, as postconflict affiliation may simply reflect normal affiliative patterns – e.g., friends spend more time together than non-friends (Hartup & Laursen, 1999).”

- To provide more details about the range of conflict outcomes we specified the number of ‘together’ and ‘separate’ outcomes:

pp. 22-23: “Of the 195 episodes of coercive competition, 60 (30.7%) ended with together outcomes, 82 (42%) with postconflict affiliation after initial separation, and 53 (27.1%) with separation.”

E3) Standardization of ‘peer regard’ measures. ➔ In fact, peer nominations were standardized within each class in the original data analysis. To clarify this, we changed the ms as follows:

- p. 17: “For each question, children’s individual scores were determined by summing the number of nominations received from their peers, then standardizing within each classroom. Sociometric popularity was determined by subtracting negative nominations from positive (i.e., the standardized sum of ‘like to play with’ minus the standardized sum of ‘don’t like to play with’ nominations). Social impact was determined by adding the standardized sum of positive (like to play with) and negative (don’t like to play with) nominations.”

Specific points

E4) Specify age in addition to grade on P5/53 to assist non-US readers and tell us that study conducted in Midwestern town in US in the Method. ➔ Done.

E5) 'Repeatedly' is probably better than 'continuously' on P6/11. ➔ Done.

E6) 'Must be' is a little strong on P8/15. ➔ To address this concern, we changed the following:

- p. 9: “To test the hypothesized link between post-conflict affiliation and a preceding aggressive bout, de Waal and Yoshihara (1983) developed the post-conflict-matched-control (PC-MC) method, otherwise known as the attracted pairs method. Broadly, the basic goal of the attracted pairs method is to test systematically whether (a) affiliation occurs more often after aggressive contests compared to rates of affiliation during free play, and (b) whether it occurs selectively between former opponents (de Waal, 2000). To test for these contingencies, the attracted pairs method requires that…”

E7) The upper age limit is said to be 59 months on P10 and 60 months on P11. ➔ The 59 months was an error, which we have fixed. Thank you for catching this.

E8) Not sure given sufficiently clear explanation of how missing data dealt with. ➔ To address this concern, we changed the following:
• p. 12: “To ensure that these children’s scores did not bias the study’s results, all analyses were performed twice, once with and without these 12 children’s scores. Because the results did not differ, we report only those results based on the full dataset.”

• p. 16: “Thus, the present study used population-average, generalized linear models (GENMOD) for longitudinal data, as recommended by statisticians and developmentalists alike (e.g., Fitzmaurice, Laird, & Ware, 2004, Chap. 10-11; Jelicic, Phelps, & Lerner, 2009). Assuming an ignorable missing data mechanism (Liang & Zeger, 1986), GENMODs use the generalized estimating equations (GEE) method to accommodate missing data by using all available observations to predict $\hat{Y}_i$ values (for full discussion see Fitzmaurice et al., 2004, Chap. 4; see also Jelicic et al., 2009).”

E9) On P12-13, please explain why scan and event sampling were prioritized as described; ➔ To address this concern, we added:

• pp. 14-15: “When aggressive competition was detected involving children other than the focal child, scan sample/instantaneous recording stopped and observers shifted to event sampling. Thus, event sampling always took precedence over scan samples, as is consistent with the distinct purposes of event (i.e., observing all occurrences of a specific behavior) and instantaneous scan (i.e., numerous, separate, randomly ordered observations) sampling strategies (for full discussion, see Pellegrini, 2004, Chap. 8).”

E10) What is meant by ‘interview questions were determined by the three research groups...’ on P14/46. Superficially, this sounds rather casual; ➔ We agree, this language suggests a casual approach that doesn’t accurately characterize the choice of questions. What we hoped to convey was that 3 research labs (i.e., Pellegrini, Gunnar, and Crick) were involved in this decision. As you note, however, this detail isn’t as relevant as the concern that previous research shows evidence of validity and reliability for the sociometric procedure and associated questions. Thus, we changed the ms as follows:

• pp. 16-17: “Sociometric interviews were conducted with individual children twice during the school year, with interview questions based on a peer-nomination measure used in prior research with preschool-age children (Crick, Casas & Mosher, 1997).”

E11) 195 aggressive events is rather low for this age group. ➔ We agree that aggressive events were rare and that this represents a limitation of the study. We added a comment to this effect in the discussion:

• p. 33: “This limitation is particularly relevant to this study’s account of coercive resource control and the analysis of reconciliation, as the number of observed episodes of coercive competition in this study was rather low (see e.g., Walters, Pearce, & Dahms, 1957), raising important questions about how preschooler’s conflict opportunities may have been limited by space, density, amount of structure and teacher-child ratios.”

E12) Tell us throughout Results where tables and figures should be located. ➔ Done.
E13) P26/11 - 'complement', not 'compliment' \(\rightarrow\) Done. Thanks for catching this!

Reviewer 1

Please extend our gratitude to Reviewer 1 for their positive comments about the study’s rigor, methodology, and potential for significant contribution. We thank them also for their questions and suggestions for improving the ms. We have made every effort to address these issues and detail our response below.

R1.1) Inconsistent and, at times, confusing use of the terms “group”/ “group formation” \(\rightarrow\) This an important issue, both in terms of social dominance and, more generally, in terms of how to describe processes linking different levels of analysis (e.g., from dyadic relationships to group-level structures). To clarify these issues we’ve added background on ethological perspectives linking interactions, relationships, and groups. We have also carefully reviewed the ms to clarify our focus on dyadic social dominance relationships, trying in all ways to avoid confusing discussions of group formation (more clearly described in terms of stabilizing dyadic relationships) and group-level outcomes (e.g., increased cohesion, reduced aggression). Changes included:

- p. 2, Abstract: Replaced “group formation” reference to the statement: “Findings are discussed in terms of resource control theory and the importance of situating social behaviors within the behavioral and relationship context in which they are embedded. with “in accord with the stabilization of social dominance relationships.”

- To place social dominance relationships within the larger context of ethological definitions of behavioral interaction, relationships and groups, we added:

  pp. 4-5: \(\rightarrow\) “Historically speaking, the social context of coercive behaviors like aggression has been ignored (Hartup, 2005). This is a mistake, of course, as social behaviors do not occur in isolation but typically involve a series of interactions occurring over time, with each interaction influencing subsequent ones. Following Hinde (1979), a history of interaction forms the basis of relationships, which in turn influence the type and range of subsequent interactions. At another level of abstraction, relationships are also embedded within groups, whose social structures are defined by the constituent relationships, group norms, and other emergent properties which differentiate groups from mere aggregates of individuals (Rubin, Bukowski, & Parker, 1998).”

- Throughout ms, section header “Resource Control in the Context of Group Formation” was changed to “Resource Control in the Context of Time and Social Dominance Relationships.”

R1.2) Include information on whether reconciliation between former opponents may depend on the nature of the relationship between the pair of children in question. For example, is reconciliation more likely between special friend pairs versus dominant-subordinate friend pairs? \(\rightarrow\) The reviewer highlights one of the paper’s core ideas – i.e., that behavioral processes linking aggression and peer regard may be moderated by the nature of the relationship between
conflicting peers. Of interest in the current ms are social dominance relationships, but we agree ‘friend’ relationships may also be germane. Thus, in the revised ms, we addressed this issue to the extent possible by the current dataset. Specifically, we added discussion of the potential moderating role of friendship, as well as relevant data and analysis (see changes listed below). We wish to emphasize, however, that ‘friends’ are not the main focus of the ms nor, in our opinion, does the study’s design and results shed much new light on the issue (e.g., only 14 of the 100 PC-MC pairs involved mutually nominated friends). Thus, we attempted to frame the friends discussion in comparison to social dominance relationships, rather than a point of focus. For example, to review previous work suggesting that conflict resolution may depend on the nature of the relationship between children we added:

- p. 9: “Hartup, Laursen, Stewart, and Eastenson (1988) compared conflicts between friends and neutral associates among three groups of 3- to 5-year-old preschoolers. Conflict was defined in terms of ‘resistance to social influence,’ thus combining aggressive and non-aggressive conflict, as well as competitive and non-competitive conflict (for a review of conflict definition issues, see Shantz, 1987). Results showed that postconflict affiliation varied as a function of relationship type, with mutual friends significantly more likely than neutral associates to remain together after conflict.”

- p. 10: “Verbeek and de Waal (2001) studied six, southeastern U.S. preschool classrooms, with children ranging in age from 32 months to 71 months (M = 49.2 months). Of 307 total conflicts, 69 (22.5%) ended in together outcomes and 80 (26.1%) in reconciliation. Interestingly, there was no significant difference in reconciliation between friends and neutral associates, even as friends were more likely to stay together (i.e., not separate after conflict) than neutral associates. Finally, Fujisawa, Kutsukake, and Hasegawa (2005) studied two, same-age preschool classrooms in Japan (one three-year-old classroom and one four-year-old classroom). Of 157 total conflicts, 60.1% ended in reconciliation. Interestingly, while four-year-olds’ conciliatory tendencies were greater between neutral associates than between friends, there was no significant difference for three-year-olds.”

- To report our own findings on the role of friendship on conflict outcomes we added:

  p. 25-26: “Friends. Analyses also examined whether the frequency of reconciliation differed between mutually nominated friends and neutral associates. Interestingly, only 14 of the 100 PC-MC pairs involved mutually nominated friends, resulting in 6 attracted, 4 dispersed, and 4 neutral pairs, and the exact binomial test failed to show that the number of attracted and dispersed pairs differed from a 1:1 expectation (p = .75). For neutral associates, pooling the PC-MC data resulted in 39 attracted, 14 dispersed, and 33 neutral pairs, and the binomial test showed that the number of attracted and dispersed pairs differed significantly from a 1:1 expectation (p < .01). The friends CCT was 14% and neutral associates’ was 29%, and these CCT percentages differed significantly from a 1:1 expectation (exact binomial: p < .05). These results suggest that reconciliation was more likely among neutral associates than friends.”

- And, finally, in the Discussion we added:
For friendship, results showed that reconciliation was more likely among neutral associates than friends, a finding consistent with one study (Fujisawa et al., 2005) but contrary to two others (Verbeek & de Waal, 2001; Hartup et al., 1988). Additional research is needed to disentangle these findings, as the nature of the samples (i.e., same-age versus mixed-age classrooms) and methodological differences in the way researchers identified friends (e.g., percentage of time spent together versus mutual nomination) make direct comparison among the studies impossible.

R1.3) Did you expect any gender differences on social dominance? → Conceptually, we did not expect any gender differences as resource control (i.e., social dominance) should be equally important for males and females (see Hawley, 200, pp. 17-18, for extended discussion of this view). Empirically, extant literature on preschoolers’ social dominance relationships also reports no evidence of sex differences. Exploratory tests were conducted however, and in the revised ms we make clear that results showed no sex differences.

R1.4) Were sociometric nominations for each child summed and then standardized within each class? Were cross-gender nominations permitted? → As noted above in response to Editor’s Concerns #7, peer nominations were in fact standardized within each class and we have clarified the ms accordingly. Also, following standard procedures (e.g., Crick, Casas, & Mosher, 1997), opposite-sex peer nominations were permitted. We clarified this point in the ms, as noted below:

- p. 17: “Procedurally, peer nominations began with the adult holding up a picture board containing individual pictures of each of the child’s classmates, including opposite-sex peers.”

R1.5) On p. 15, clearly identify the sociometric nomination items that correspond to the various subtypes of aggression that are presented in Table 6. → Done.

R1.6) Did you run any models that included gender as a predictor? → As noted in R1.3 above, we did not expect any sex differences, either conceptually or based on prior research on preschool-age children. We did, however, include sex as a predictor in all models for exploratory purposes, but in all cases results were non-significant. We agree with the Reviewer’s expectation of gender differences in the “strategies used for access and sustained control of resources,” but, in our understanding, the literature suggests that such differences are more apparent in adolescence than preschoolers (e.g., Savin-Williams, 1987; for review of sex differences in resource contests, see Pellegrini, 2008, pp. 464-465; Hawley, 2006, p. 17-18).

R1.7) Provide clear explanation for all symbols in various model equations. → Done.

R1.8) Reason why social dominance scores were dichotomized (p.19) as opposed to including high, moderate, and low social dominance groups in Figure 1? → Social dominance scores were dichotomized for display and descriptive purposes only. The choice of dichotomization over, say, three groups being driven by conceptual continuity (e.g., dominant vs. subordinant) and graphical simplicity. Graphically, we decided that including six lines on one figure (i.e., 3 for coercive and 3 for prosocial) was visually distracting. To clarify the nature of this decision in the ms, we added the following:
• p. 23, “Display model. To aid interpretability of these results, Equations 2 and 3 and results in Tables 2 and 3 were used to construct the display model shown in Figure 1. Specifically, for display purposes only, the continuous teacher-rated measure of social dominance was dichotomized by assigning “high” status to those children with social dominance scores above the third quartile, and “low” status to those children with scores less than or equal to the third quartile. Figure 1 was then constructed by…”

R1.9) I would like to see some discussion of physical characteristics that have been linked to social dominance (e.g., physical size), and how this may affect the maintenance of resource control. ➔ To address this concern we added discussion of physical size to the revised ms:

• p. 29: “…even after controlling for age. This is not to say, however, that age-related measures are unimportant in interactions involving either coercive or prosocial strategies. For example, physical size is related to age (Tanner, 1970), yet may be a particularly salient piece of information in resource control contests, serving as a social display “advertising” an individual’s resource holding power to peers (Clutton-Brock & Albon, 1979; Gangstad & Thornhill, 2004; Pellegrini et al., 2007). Indeed, future research should consider whether physical size differentially predicts rates of initiating and being the target of resource control attempts. To the extent that “bigger” equates with perschooler’s conceptions of resource-holding power, larger children may initiate more competitive bouts compared to smaller peers and, correspondingly, be targeted less often, as physical size informs peers that there is a lower chance of successful outcomes.”

R1.10a) Address whether nature of sample may have affected interpretation of results, as might changes due to other external factors. ➔ To address these concerns, we expanded on our discussion of possible limitations:

• p. 33-34: “This limitation is particularly relevant to rates of aggressive resource control, as this sample’s number of observed episodes of aggressive competition was rather low for preschoolers (see e.g., Walters, Pearce, & Dahms, 1957), raising important questions about how children’s conflict opportunities may have been limited by space, density, amount of structure and teacher-child ratios. Further, the relatively small number of dyads involved in episodes of coercive competition (9% of total possible dyads) and PC-MC pairs (5% of total possible dyads) raises questions about the generalizability of results across all dyadic relationships even within the full sample. On the other hand, this and other observational studies of preschoolers aggression (e.g., Pellegrini et al., 2007) do emphasize that coercive contests tends to arise within specific (i.e., relatively few) dyadic contests, calling into question the validity of peer relation methodologies that assume that all individuals in a group interact with each other.

Of course, the teacher represents one variable affecting all children in a classroom, and socialization processes should also be considered in discussing the study’s results. Thus, in a previous publication based on these data (see Roseth et al., 2008), we examined the relation between teacher intervention and rates of preschoolers’ coercive competition. Most relevant to the current discussion, descriptive results showed (a) consistent patterns of decreasing rates of coercive resource control across all five classrooms and (b) that classrooms highest
in preschoolers’ aggressive competition were also highest in teacher intervention. While the study’s naturalistic design makes it impossible to determine the directionality of these relations, the pattern of results does suggest that changing rates of coercive resource cannot be solely attributed to the frequency of teacher intervention (for further discussion of teacher intervention, see also Killen & Turiel, 1991; Devries & Zan, 1994; Bayer, Whaley, & May, 1995). Future research should continue to examine how peer relation processes such as establishing and maintaining social dominance relationships interacts with adult socialization efforts.”

R1.11) As mentioned earlier, the use of the term “group level” is confusing (p.24). → See R1.1 above. As well, the following change was made in discussion:

• p. 27: “and group structure” deleted from sentence, “Such robust findings suggest that this is a general pattern typifying the role of aggression in dyadic competition.”

Reviewer 2

Please also extend our gratitude to Reviewer 2 for highlighting manuscript’s strengths and potentially significant contribution to the literature. We thank them also for the detailed suggestions regarding the reconciliation analysis. We have made every effort to incorporate these recommendations and detail our responses below.

R2.1a) Compute and present the corrected conciliatory tendency (CCT) → As suggested, we calculated CCT for (a) the overall sample, (b) by classroom, (c) friends and neutral associates, and (d) high- and low-domiance status children. For example:

• p. 18 – “Conciliatory tendency. Importantly, the attracted pairs method also enables the determination of a corrected conciliatory tendency (CCT) (Veenema, Das, & Aureli, 1994), defined as (the number of attracted PC-MC pairs - number of dispersed PC-MC pairs) / total number of PC-MC pairs. The CCT enables the comparison of conciliatory tendency among individuals (e.g., high- and low-domiance, friends and neutral associates) and groups (e.g., different classrooms).”

• p. 24 – “The overall conciliatory tendency (i.e., CCT) was 27%, and the CCT of individual classrooms ranged from 21 to 33%.”

• p. 25 – “The CCT for high-domiance children was 32.3% and for low-domiance children 23%, but these percentages did not differ significantly from a 1:1 expectation (exact binomial: p = .28).”

• p. 26 – “The friends CCT was 14% and neutral associates’ was 29%, and these CCT percentages differed significantly from a 1:1 expectation (exact binomial: p < .05). These results suggest that reconciliation was more likely among neutral associates than friends.”

• p. 30 – “The corrected conciliatory tendency (CCT) of this sample was 27%, which is somewhat lower than the CCT found in previous studies using the PC-MC method (35, 47,
and 60% in children from Japan, the U.S., and Sweden, respectively. Most likely, cultural differences influence both the frequency of and form children’s reconciliation (Butovskaya, Verbeek, Ljungberg, & Lunardini, 2000). However, given the range of ages represented in the few extant studies of children’s reconciliation (e.g., 3.5- to 7-years-old), additional research is needed to disentangle cultural and age-related sources of variation.”

R2.2) *Apply Aureli’s et al. (1989) ‘time rule’ method.* ➔ We applied Aureli’et al’s (1989) time rule method as detailed below.

- p. 18 – “Time-rule. The second method used to test for reconciliation was the ‘time-rule’ method, as specifies timeframe in which reconciliation occurs. Specifically, the time-rule method compares the frequency distribution of first affiliative contacts between former opponents during the PC and MCs. Using the Kolmogorov-Smirnov test, reconciliation is inferred if the frequency of first affiliative contacts is higher in the PCs compared to the MCs.”

- p. 24 – “Second, the time-rule method tested for reconciliation by examining whether the distribution of first affiliative contacts was greater in the PC than in the MC. As expected, a Kolmogorov-Smirnov test showed a significant difference between the PC and MC distributions (Z = 1.72, p < .01), and the greatest frequency (n = 49) of PC affiliation occurred within the first minute. Thus, reconciliation was inferred using both the attracted pairs and time-rule methods, supporting the hypothesis that affiliation after conflict-induced separation occurs selectively between former opponents, even after controlling for baseline rates of affiliation during free play.”

R2.3) *More complete commentary concerning the testing for reconciliation.* ➔ We added much more detail regarding the reconciliation analysis, including calculations of the percentage of children represented in the PC-MC analysis, as well reporting Wilcoxon signed-rank tests at the individual- rather than dyadic-level so as to avoid overrepresentation by some children. For example:

- p. 24 – “In all, n = 53, or 60% of the 88 children in the full sample were involved in PC-MC pairs and, of these, n = 34, or 60% were involved in more than one PC-MC pair (mean: 2.55 PC-MC pairs per child, range: 1 to 9 PC-MC pairs). In all, there were n = 74 dyads with PC-MC pairs, or only 5% of the 1470 possible dyads across the five classrooms.”

R2.4) *Comment on limitation due to small percentage of dyads involved in the reconciliation analysis.* ➔ Done. See details in R1.10a above.