

Peer Relations of Bullies, Bully-Victims, and Victims: The Two Social Worlds of Bullying in Second-Grade Classrooms

Thomas W. Farmer
Robert A. Petrin

Pennsylvania State University

Dylan L. Robertson

Chicago Public Schools

Mark W. Fraser

University of North Carolina at Chapel Hill

Cristin M. Hall

Pennsylvania State University

Steven H. Day
Kimberly Dadisman

University of North Carolina at Chapel Hill

Abstract

This study examined the social relations of bullies, victims, and bully-victims in second-grade classrooms. Bully-victims are identified as both bullies and victims. The sample consisted of 537 ethnically diverse second-grade students (247 boys, 290 girls) from 37 classrooms across 11 participating schools. Bullies, bully-victims, and victims tended to have somewhat distinct socio-metric status and peer-assessed behavioral characteristics. Furthermore, bullies and bully-victims had distinct affiliation patterns. Bullies tended to be members of peer groups that contained few victims and most were in groups in which more than 50% of the members were not involved in bullying. In contrast, bully-victims tended to be members of groups that were composed primarily of bullies (i.e., bullies and bully-victims) and victims (i.e., victims and bully-victims). Implications for understanding the social dynamics of bullying in elementary school are discussed.

Bullying is defined as a power differential in which one or more youth repeatedly use aggressive strategies (e.g., physical, relational, social) to dominate and cause harm to others of relatively lower status (Olweus, 2003; Vaillancourt, Hymel, & McDougall, 2003). Throughout the world, bullying relationships are readily identifiable and can be expected to occur in school (Smith & Brain, 2000). Why is bullying a common phenomenon? It is possible that bullying is a by-product of the natural social dynamics that emerge when children are aggregated together in a defined social unit (Farmer, 2000). Consistent with this perspective, bullying has been viewed as an ecological or group process with the children who are involved having distinct social roles and

relationships (Pepler, 2006; Salmivalli, Huttenen, & Lagerspetz, 1997).

Research on the social dynamics of bullying may be important in the development of interventions to prevent and reduce victimization in school (Espelage & Swearer, 2004). While it is known that some aggressive and victimized youth tend to be socially marginalized, there is considerable ambiguity regarding the peer relations of bullies as evidenced by debates about their interpersonal competence (see Arsenio & Lemerise, 2001; Sutton, Smith, & Swettenham, 2001). This ambiguity may be explained in part by recent studies that highlight distinct subtypes of aggressive children who have different levels of status and patterns of peer affiliations (Farmer, Estell, Bishop, O'Neal, & Cairns, 2003; Hawley, 2002). Such work suggests that interventions to address bullying in school must focus not only on the social behavior of bullies and victims, but should also address the contributions of the social context (Rodkin & Hodges, 2003). This may be particularly important during the early school years when children develop their social identities and establish peer affiliations (Pellegrini, 2008). Accordingly, the goal of this study is to clarify the social dynamics of bullying in early elementary classrooms by examining the peer relations of bullies, victims, and bully-victims in second grade.

Bullies, Victims, and Bully-Victims

Research on bullying has consistently demonstrated that there are three distinct types of youth who are directly involved in bullying: children characterized as bullies but not as victims, children characterized as victims but not as bullies, and children who are simultaneously identified as bullies and victims (Perren & Alsaker, 2006; Solberg, Olweus, & Endresen, 2007; Veenstra et al., 2005). These categories have been identified with children from preschool through elementary and secondary school, and have

been shown to be differentially linked to social relationships.

Social acceptance, friendship, and peer group size have been viewed as buffers to peer victimization. During kindergarten, but not preschool, being liked by peers and having friends was found to be inversely related to victimization (Hanish, Ryan, Martin, & Fabes, 2005). When the focus expands to include the social adjustment of bullies, bully-victims, and victims, the picture becomes more complex. In a recent investigation of bullying in kindergarten classrooms, the peer relations of victims, bully-victims, and bullies were compared to those of noninvolved children (Perren & Alsaker, 2006). Victims tended to have fewer social skills and were more likely to be socially marginalized (i.e., isolated or have few playmates), bully-victims were more aggressive and more likely to have fewer playmates, and bullies were more aggressive and had more leadership skills and larger social clusters than noninvolved children. In a study of bullies, victims, and aggressive victims' social networks in sixth grade, friends' participation in aggressive behaviors was positively associated with being a bully or an aggressive victim and negatively associated with being a victim (Mouttapa, Valente, Gallaher, Rohrbach, & Unger, 2004). Furthermore, youth who received a high number of friendship nominations were less likely to be identified as a victim. Differences between bullies, bully-victims, and victims have also been found for sociometric status. In a sample of Dutch preadolescents, bullies, bully-victims, and victims were all more disliked than noninvolved children (Veenstra et al., 2005). However, bullies were less socially isolated and victims were more socially isolated than noninvolved children.

Collectively, these results suggest that children who are bullies are better integrated into their classroom social structures and are less likely to be socially marginalized than children who are identified as victims and bully-victims. Differences in

the social relations of bullies, victims, and bully-victims may have important implications for understanding the social dynamics of bullying and may come into better focus by considering recent findings that suggest there may be two social worlds of aggression in schools.

The Two Social Worlds of Aggression

In many ways, aggression in school has been associated with being socially marginalized. Sociometric status research has shown that many aggressive children are rejected (i.e., highly disliked) by their classmates and lack social skills that are related to peer acceptance (Asher & Coie, 1990). However, 50% of aggressive children do not have rejected status (Coie & Dodge, 1998). Furthermore, other measures of social position, such as perceived popularity (i.e., nominations for being popular) and social network centrality (i.e., connections with peers in the social system), indicate that there is considerable variability in the social status of aggressive youth (Farmer & Rodkin, 1996; Vaillancourt & Hymel, 2006). Some aggressive children are viewed by teachers and peers as being popular even though they may not be well liked (Farmer et al., 2003; Lease, Musgrove, & Axelrod, 2002) and some are highly central members and prominent leaders of peer groups (Bagwell, Coie, Terry, & Lochman, 2000; Estell, Farmer, & Cairns, 2007).

In addition to the variability in the social status of aggressive youth, there is also considerable diversity in their affiliative patterns. Several studies have shown that aggressive youth affiliate with aggressive peers (e.g., Bagwell et al., 2000; Cairns & Cairns, 1994). Yet, recent studies indicate that some aggressive children and adolescents are socially isolated, some associate with unpopular peers, and some are members of peer groups that are composed primarily of youth who are perceived by teachers and peers as being popular or so-

cially prominent (Farmer et al., 2002, 2003; Kwon & Lease, 2007). Consistent with this view, Bagwell et al. (2000) found that youth with controversial status (i.e., children who receive high levels of peer nominations for being both liked and disliked) tended to be central (i.e., highly prominent) in aggressive peer groups, while youth with rejected status (i.e., children who receive high levels of peer nominations for being disliked) tended to be socially marginalized and associated with other unpopular peers.

The research on the social relations and peer affiliations of aggressive youth suggests that there are two distinct social worlds of aggression that are evident as early as the middle years (i.e., second or third grade) of elementary school. Some aggressive youth are well integrated into their classroom social structures, are both highly liked and disliked by peers (i.e., controversial sociometric status), are perceived to be as socially prominent as nonaggressive students, and affiliate with conventional and perceived-popular peers. Other aggressive youth are rejected by peers, tend to affiliate with other socially marginalized classmates, and are not perceived as being socially prominent.

Conceptual Framework

The view that there are two social worlds of aggression may have important implications for understanding the social dynamics of bullying in school. Although childhood aggression and bullying are distinct constructs, there is considerable overlap between the two in terms of behavioral expression and social processes. Therefore, the focus of the current study is to examine the extension of the "two social worlds" hypothesis from aggression to bullying.

A social default/deviant peer group hypothesis has been a prevailing theory of the social development of aggressive children. This hypothesis suggests that many aggressive youth have deficient social skills, are rejected by conventional peers in child-

hood, and gravitate to deviant peer groups by early adolescence (late elementary and middle school years) because they are not socially acceptable to nonrejected peers (Dishion, Patterson, Stoolmiller, & Skinner, 1991). According to this viewpoint, aggressive youth with controversial status may take on leadership roles in social default peer groups and become popular with their rejected classmates, although they may be socially marginalized by peers in general (Bagwell et al., 2000).

In contrast to the social default/deviant peer group hypothesis, the two social worlds hypothesis suggests there are two distinct types of aggressive children who have different social positions and experiences that may differentially support their involvement in bullying. From this perspective, some aggressive children associate with conventional peers and are among the most socially influential and central members of their classroom's social networks (de Bruyn & Cillessen, 2006; Estell et al., 2007; Vaillancourt & Hymel, 2006). These children use both prosocial and aggressive strategies to control social resources in the classroom (Hawley, 2002) and are perceived to be popular by both teachers and peers (Rodkin, Farmer, Pearl, & Van Acker, 2006). However, while they may be liked by some classmates, their use of aggressive strategies is likely to result in being disliked by other peers. In contrast, other aggressive children are more likely to be socially marginalized. These children experience higher rates of peer rejection and are less likely to be perceived by peers as socially prominent (i.e., popular, cool). In addition, these children are less likely to associate with conventional peers. At this point, it is not known how these two distinct social worlds of aggression are related to bullying involvement. In particular, there is little information about the collective social worlds (i.e., perceived interpersonal characteristics, peer acceptance, social prominence, and peer group affilia-

tions) of bullies, bully-victims, and victims in early elementary classrooms.

Furthermore, gender differences are an important consideration in research on bullying. Boys and girls differ in aggressive expression and bullying involvement (Peppler, Craig, Yule, & Connolly, 2004). Girls are more likely to use indirect (i.e., social, relational) forms of aggression and less likely to be physically aggressive (Cairns & Cairns, 1994; Putallaz et al., 2007). Also, rates of involvement in bullying tend to be lower for girls (Solbere et al., 2007). While gender differences are pronounced in the adolescent years (Cairns & Cairns, 1994), they are also evident in childhood (Putallaz et al., 2007). Yet, when measures of aggression, bullying, and victimization are standardized by gender and analyses are conducted separately, the relationship between aggression and classroom social relations is somewhat similar for boys and girls (Farmer et al., 2003). Therefore, research on aggression and social dynamics must take into account gender differences while also examining commonalities in social processes.

The Current Study

The goal of the current study was to examine whether the two social worlds hypothesis extends from aggression to bullying by exploring the peer relations of bullies, bully-victims, and victims in second-grade classrooms. This study focused on second grade for two related reasons. First, during kindergarten and first grade, children develop social competencies that are related to using both agonistic and prosocial forms to establish dominance, and there is considerable fluidity in emerging social positions (Hanish et al., 2005; Pellegrini et al., 2007). Also, there is evidence to suggest that young children are not able to provide reliable reports of victimization (Ladd & Kochenderfer-Ladd, 2002). By second grade, the social positions of individuals and the composition of peer groups are

fairly stable, and it is possible to identify clear social structures from children's peer reports (Estell, Cairns, Farmer, & Cairns, 2002). Therefore, we viewed second grade as a time when the two social worlds of aggression would be evident in classroom social structures. Second, there is a general view that aggression is associated with being socially marginalized in elementary school and is not linked to social prominence and acceptance by conventional peers until early adolescence. By examining the two social worlds of aggression hypothesis in second grade, the current study may provide new perspectives on the social dynamics and peer group processes that promote distinct types of bullying (i.e., bullies, bully-victims) in the early elementary school years.

This research was guided by four aims. The first aim was to investigate bullying subtypes in relation to peer nominations of social adjustment. This involved exploring the relationship between bullying-involvement subtypes (i.e., bullies, victims, bully-victims) and peer nominations on key interpersonal competence factors (i.e., aggression, prosocial skills, social prominence, internalizing behavior). The second aim was to examine the peer acceptance of bullying-involvement subtypes. This involved exploring whether bullying subtypes differ on indices of sociometric status (i.e., popular, average, controversial, neglected, rejected). The third aim was to explore differences in bullying-involvement subtypes in relation to teacher ratings of social influence indices (e.g., class leader, wins a lot, gets their way, and good at sports). The fourth aim was to examine the relationship between bullying-involvement subtypes and peer affiliations. This involved investigating whether distinct subtypes differed in their associations with peers who were also involved in bullying. Peer groups were classified as predominantly bullies (i.e., over 50% of the members were identified as either bullies or bully-victims), predominantly victims (i.e., over 50% of the members were identified as victims or bully-victims),

and predominantly not involved (i.e., over 50% of the members were not identified as bullies, bully-victims, or victims). Based on the two social worlds hypothesis, it was expected that bullies would be more likely to associate with noninvolved peers, while bully-victims would be more likely to affiliate in predominantly bully and victim groups.

Method

Sample and Design

This study is part of a larger longitudinal study that is being conducted as part of an evaluation of a comprehensive intervention program aimed at promoting the social adjustment of elementary students. The current report involves analyses of baseline data that were collected prior to any intervention efforts (which occurred in grades 3–5). This research took place in three non-metropolitan counties in a southeastern state. The consent rate for second-grade students in the participating schools was 70%, and the sample consisted of 537 second-grade students (247 boys, 290 girls) from 37 classrooms across 11 participating schools. The sample comprised 53.6% European American, 28.7% African American, 9.1% Hispanic, and 8.6% other races or ethnicities and reflected the general population of the participating schools. Additional sample characteristics of the children in the study mirrored those of the general student population of the participating schools in which 53% of all students were eligible for subsidized meals through the National School Lunch Act. Among the children in the study sample, nearly 45% lived in single-parent families, and more than 30% of primary caregivers were unemployed.

Procedures

Recruitment involved sending consent letters to all parents of second-grade students in the participating schools. Consent procedures and all measures and data-

collection protocols were approved by a university internal review board, the central office administration of the participating districts, and ethics review panels of the participating schools.

Following a group administration protocol that has been used with elementary school students for 2 decades, data were collected in the spring. Consented participants were gathered in their school's cafeteria and assigned alternating seats such that no student was directly beside or across from another student. The students were informed about confidentiality and told that they were not required to participate and that they could withdraw from the study at any time. The instructions for completing the surveys and the individual survey items were read aloud by a trained administrator. Additional research staff provided mobile monitoring to assist students. Students were instructed to do their best with spelling and were told that if they had a question to raise their hand and an administrator would come by to help them. Small-group or individual assessments were conducted with students whom teachers identified as having reading or spelling difficulties. This was done in separate administrations that did not draw attention to the students. While the students completed the surveys, their teachers were asked to complete brief assessments of the participants. Teachers received financial compensation for their participation, and the children received compensation in the form of special pencils.

Measures

Multiple measures were used to assess children's social behavior and peer relations. Table 1 summarizes specific constructs, measures, and respondents.

Social cognitive maps (SCM). Following procedures established by Cairns and colleagues (e.g., Cairns, Leung, Buchanan, & Cairns, 1995; Cairns, Perrin, & Cairns, 1985), participants were asked, "Are there

some kids in your classroom who hang around together a lot? Who are they?" Students were instructed to list as many groups as they could think of in their class. Consistent with past work on social cognitive-mapping procedures, students were not provided with class rosters, and peer nominations were made from free recall. Peer groups identified by the SCM have been validated by observational and survey data, and analysis of students' classroom interaction patterns (Cairns & Cairns, 1994; Gest, Farmer, Cairns, & Xie, 2003). Short-term test-retest reliability coefficients suggest high stability of students' peer groups, especially during the same academic year (Cairns et al., 1995).

Data from the SCM surveys were analyzed with the SCM 4.0 program to identify distinct peer groups within the social network (Leung, 1996). The probe and analytic framework of the SCM procedures differ from other social network procedures that use self-reporting of peer groups or friendships because it asks children to report on not only their own peer group but all groups that they are aware of in the classroom. This reduces the reliance on high participation rates for reliable and valid social networks. Monte Carlo style trials have indicated that the SCM procedures are robust and reliably identify peer groups in classrooms that have participation rates of at least 50% (Cairns & Cairns, 1994). Furthermore, with participation rates of 50%, behavioral measures of student interactions demonstrate that this threshold is sufficient for correctly identifying even those group members who are only peripherally associated with the group (Gest et al., 2003). For the current study, participation exceeded the 50% threshold in all classes.

Peer nomination factors. Participants were asked to nominate three classmates who best fit descriptors for 17 items: cooperative, disruptive, shy, fights, seeks help, bully, leader, athletic, gets in trouble, good student, cool, sad, starts rumors, picked on, popular, friendly, and gets their way. Stu-

TABLE 1. Summary of Characteristics Based on Measures

Factor	Method of Derivation
Peer nomination factors	Peers asked to nominate students for best fit of descriptors, could nominate same person more than once.
Aggression	Combination of standardized nominations for disruptive, starts fights, gets in trouble, starts rumors.
Prosocial skills	Combination of standardized nominations for cooperative, good student, friendly.
Social prominence	Combination of standardized nominations for leader, athletic, cool, gets their way, popular.
Internalizing behavior	Combination of standardized nominations for acts shy, seeks help, sad.
Bully	Stand-alone item indicator.
Picked on	Stand-alone item indicator.
Sociometric status categories (peer report)	Determined by a combination of standardized social preference (liked most minus liked least nominations) and social impact (liked most plus liked least) nominations.
Popular	Social preference score of greater than 1.0. Liked most standardized score of greater than 0. Liked least standardized score of less than 0.
Rejected	Social preference score less than -1.0. Liked least standardized score of greater than 0. Liked most standardized score of less than 0.
Neglected	Social impact score of less than -1.0. Absolute liked most score of 0 (therefore no children nominated in liked most).
Controversial	Social impact score of greater than 1.0. Received liked most and liked least standardized scores that were greater than 0.
Average	Children who received social preference that was between -.5 and .5.
Social influence indices (teacher report)	Teachers asked to rate students on the Interpersonal Competence Scale—Teacher (Cairns et al., 1995) on a seven-point Likert-type scale.
Class leader	Stand-alone item indicator.
Wins a lot	Stand-alone item indicator.
Good at sports	Stand-alone item indicator.
Gets their way	Stand-alone item indicator.
Peer group types	Based on SCM, peer nomination, and teacher report.
Not predominantly bullies	Peer groups in which 50% or more of the members were not identified as being bullies or bully-victims.
Predominantly bullies	Peer groups in which 50% or more of the members were identified as being bullies or bully-victims.
Not predominantly victims	Peer groups in which 50% or more of the members were not identified as being victims or bully-victims.
Predominantly victims	Peer groups in which 50% or more of the members were identified as being victims or bully-victims.

dents were told that they could nominate the same person for more than one item. The total number of nominations received by participants for each item was adjusted to remove self-nominations. For ease of interpretation, the number of nominations was divided by the number of students in the classroom and multiplied by 1,000. Four peer nomination factors were identified as measures of participants' social adjustment: (a) aggression (i.e., disruptive, starts fights, gets in trouble, and starts ru-

mors; Cronbach's $\alpha = .90$); (b) prosocial skills (i.e., cooperative, good student, and friendly; $\alpha = .84$); (c) social prominence (i.e., leader, athletic, cool, gets their way, and popular; $\alpha = .82$); and (d) internalizing behavior (i.e., acts shy, seeks help, and sad; $\alpha = .60$). Bully and picked on were retained as stand-alone indicators.

Sociometric status. Sociometric status was determined using procedures suggested by Coie, Coppotelli, and Dodge (1982). Participants were asked to "name

three classmates you like most and three classmates you like least." While there are multiple ways to analyze sociometric data, the Coie et al. procedures are the standard for classifying distinct status categories (i.e., popular, average, controversial, neglected, rejected) (Bierman, 2004; DeRosier & Thomas, 2003). Students' standardized number of nominations for those classmates they liked most and liked least were generated by first obtaining the total number of nominations for each item for each participating student and then transforming these values to Z-scores. The Z-score transformation was performed for each item by subtracting from each student's total number of nominations the corresponding mean number of nominations received by all students in his or her classroom and then dividing by the standard deviation of the corresponding number of nominations received by all students in that classroom. A social preference score was then calculated for each participant by subtracting the standardized number of least-liked nominations from the standardized number of nominations received for being most liked. Social impact scores were obtained by adding the standardized number of liked-most and liked-least nominations. Students with a standardized social preference score greater than 1.0, a standardized most-liked score greater than 0, and a standardized least-liked score less than 0 were classified as popular. Those with a standardized social preference score less than -1.0, a most-liked score less than 0, and a standardized least-liked score greater than 0 were classified as rejected. Sociometrically neglected participants had standardized social impact scores less than -1.0. Sociometrically controversial participants had standardized social impact scores greater than 1.0 and standardized most- and least-liked scores greater than 0. All other participants were classified as sociometrically average (see Table 2 for a breakdown of bullying-involvement subtypes as a function of sociometric status).

Social adaptation indicators. Teachers' perceptions of participants' social adaptation were assessed with six items of the social adaptation subscale (Farmer et al., 2003; Farmer, Irvin, Sgammato, Dadisman, & Thompson, 2009) of the Interpersonal Competence Scale—Teacher (Cairns, Leung, Gest, & Cairns, 1995). Four of these items (class leader, wins a lot, good at sports, and gets their way) were used to assess teachers' perceptions of students' social influence. These items involve a seven-point Likert scale and have been shown to have moderate to high 6 month test-retest reliability coefficients (.49–.72) and are associated with other measures of social influence (e.g., resource control, social network centrality, and social dominance) (Farmer et al., 2003, 2009; Hawley, 2002; Pellegrini, 2008). Two additional items of this subscale (bullies peers and bullied by peers) were used in conjunction with peer nominations to identify bullies and victims (see below).

Bullying-involvement subtypes. A combination of peer-nomination and teacher-assessment data was used to determine four mutually exclusive bullying-involvement subtypes (i.e., bully, victim, bully-victim, and not identified). Peer nominations for bully and picked on and teacher ratings for bullies peers and bullied by peers were standardized by gender. Teacher ratings were then standardized by classroom. Standardization by gender was performed for each item by subtracting its corresponding gender-specific mean (e.g., the mean number of nominations for a given item received by all boys across all classrooms, the mean teacher rating received by girls across all classrooms, etc.) and then dividing the result by that item's corresponding gender-specific standard deviation. Teacher ratings were then further standardized by classroom by subtracting students' classroom mean gender-standardized rating from their individual gender-standardized rating, and then dividing the result by the students' classroom standard deviation of the corresponding gender-standardized rating.

TABLE 2. Descriptive Statistics of Social Influence and Peer Nomination

Profile	N	%	Social Influence				Peer Nomination			
			Wins a Lot	Good at Sports	Class Leader	Gets Way	Aggression	Prosocial	Social Prominence	Internalizing
Boys:										
Bully	32	13.0	4.94 (1.27)	5.69 (1.26)	4.37 (1.79)	4.44 (1.01)	82.13 (63.68)	46.86 (49.27)	79.59 (87.95)	16.99 (15.17)
Victim	50	20.3	4.16 (1.15)	4.32 (1.81)	4.22 (2.10)	4.28 (.97)	21.57 (26.76)	47.36 (52.01)	34.78 (37.10)	49.69 (64.63)
Bully-victim	61	24.7	4.39 (1.32)	4.95 (1.68)	3.49 (1.91)	4.59 (1.38)	106.45 (106.63)	28.73 (47.65)	52.86 (70.77)	40.49 (38.99)
Not identified	104	42.1	4.93 (1.19)	5.31 (1.30)	4.08 (2.07)	4.50 (.98)	14.10 (25.50)	57.42 (75.80)	55.32 (65.97)	20.17 (19.87)
Overall	247	100.0	4.64 (1.26)	5.09 (1.56)	4.00 (2.02)	4.47 (73.40)	47.29 (73.40)	46.84 (62.82)	53.40 (66.49)	30.85 (39.55)
Girls:										
Bully	29	10.0	5.21 (1.29)	5.48 (1.27)	4.41 (2.29)	5.07 (1.22)	68.20 (116.68)	43.62 (45.84)	40.16 (42.75)	14.89 (14.66)
Victim	52	17.9	4.46 (1.42)	4.46 (1.55)	3.77 (2.10)	4.21 (.99)	14.86 (22.45)	76.84 (79.65)	34.29 (39.14)	45.30 (36.66)
Bully-victim	53	18.3	4.23 (1.42)	4.02 (1.34)	3.96 (2.25)	4.47 (1.30)	102.62 (107.23)	37.05 (51.68)	36.00 (40.40)	66.94 (62.53)
Not identified	156	53.8	4.69 (1.30)	4.51 (1.42)	4.58 (2.01)	4.67 (1.29)	13.51 (19.05)	93.09 (88.61)	45.63 (52.81)	26.49 (27.67)
Overall	290	100.0	4.62 (1.37)	4.51 (1.46)	4.31 (2.12)	4.59 (1.25)	35.26 (70.05)	75.18 (81.04)	41.36 (47.63)	35.85 (40.48)
Sociometric Status Classification										
			Sociometric Status Indices				Sociometric Status Classification			
Boys:										
Bully			.00 (1.63)	.56 (1.17)	8 [25.0]	7 [21.9]	8 [25.0]	7 [21.9]	8 [25.0]	2 [6.3]
Victim			.24 (1.21)	-.24 (0.99)	11 [22.0]	21 [42.0]	3 [6.0]	2 [4.0]	3 [6.0]	13 [26.0]
Bully-victim			-.85 (1.63)	.45 (1.30)	5 [8.2]	19 [31.1]	25 [41.0]	6 [9.8]	25 [41.0]	6 [9.8]
Not identified			.52 (1.31)	-.03 (1.18)	31 [29.8]	34 [32.7]	8 [7.7]	9 [8.7]	8 [7.7]	22 [21.2]
Overall			.06 (1.52)	.12 (1.21)	55 [22.3]	81 [32.8]	44 [17.8]	24 [9.7]	44 [17.8]	43 [17.4]
Girls:										
Bully			.34 (1.43)	.54 (1.26)	9 [31.0]	9 [31.0]	2 [6.9]	6 [20.7]	2 [6.9]	3 [10.3]
Victim			.34 (1.42)	.17 (1.28)	15 [28.8]	19 [36.5]	5 [9.6]	4 [7.7]	5 [9.6]	9 [17.3]
Bully-victim			-.84 (2.06)	.66 (1.42)	9 [17.0]	12 [22.6]	20 [37.7]	5 [9.4]	20 [37.7]	7 [13.2]
Not identified			.70 (1.15)	.10 (1.07)	54 [34.6]	65 [41.7]	6 [3.8]	10 [6.4]	6 [3.8]	21 [13.5]
Overall			.32 (1.53)	.26 (1.22)	87 [30.0]	105 [36.2]	33 [11.4]	25 [8.6]	33 [11.4]	40 [13.8]

NOTE.—Means are Z-scores and unadjusted. Standard deviations are in parentheses. The scales of the measures, which vary, and the associated standardization procedures are discussed in the text. Cell frequencies as a percent of row totals are given in square brackets for the sociometric status classification portion of table. Chi-square tests of association for the sociometric status classification portion of table are reported in the text. $N = 247$ for boys and 290 for girls.

To be consistent with other studies that distinguish among bullies, victims, and bully-victims (e.g., Estell et al., 2007; Schwartz, 2000; Vaillancourt et al., 2003), a .50 *SD* cutoff was used to identify youth who were above average on bullying or victimization. Participants who had a Z-score greater than .50 on either bully or bullies peers and a Z-score of less than .50 on both picked on and bullied by peers were classified as bullies. Participants who had a Z-score greater than .50 on either picked on or bullied by peers and a Z-score of less than .50 on both bully and bullies peers were classified as victims. Participants who had a Z-score greater than .50 on either bully or bullies peers and had a Z-score of greater than .50 on either picked on or bullied by peers were classified as bully-victims. Participants who had a Z-score less than .50 on all four measures were classified as not identified because they did not fall into any of the other bullying-involvement categories.

Peer group types. Peer groups identified by the SCM procedures were classified in three distinct ways. First, each group was dichotomously classified as either predominantly bully or not predominantly bully. Next, each group was classified as predominantly victim or not predominantly victim. Finally, each group was classified as predominantly involved or predominantly not involved. The classification of peer groups followed the procedures established by Farmer et al. (2002, 2003). Specific steps for classifying groups are described below.

For bullying group type, peer groups were classified according to the proportion of members who were bullies (i.e., Z-score greater than .50 on either bully or bullies peers). Peer groups were dichotomized as not predominantly bullies (i.e., 50% or more of the group members were not identified as being bullies or bully-victims) and predominantly bullies (i.e., over 50% of the group members were identified as bullies or bully-victims). For victim group type, the same peer groups were classified ac-

cording to the proportion of members who were victims (i.e., Z-score of greater than .50 on either picked on or bullied by peers). Peer groups were dichotomized as not predominantly victims (i.e., 50% or more of the group members were not identified as victims or bully-victims) and predominantly victims (i.e., over 50% of the group members were identified as victims or bully-victims). For predominantly involved group type, peer groups were dichotomized as predominantly involved (i.e., over 50% of members were identified as any combination of bullies, bully-victims, and victims) and predominantly not involved (i.e., less than 50% of members were identified as any combination of bullies, bully-victims, and victims).

Analytic Strategy

Two-level hierarchical generalized linear models (HGLMs; e.g., Raudenbush & Bryk, 2001) were used to analyze data, where the Level 1 portion of the models pertained to students and the Level 2 portion pertained to classrooms. Since prior research has shown that peer relations vary by gender, these analyses were conducted separately for boys and girls. Additional analyses revealed that including peer groups or schools as a separate level in these models, while substantively interesting and potentially important in examining questions of the type we are interested in, was not feasible for the current set of analyses due to estimation difficulties (i.e., parameter instability, model convergence problems, etc.).

The distributions of outcome variables required using three different types of HGLMs. For the first series of analyses, which pertained to the relationship between bullying involvement and student peer nominations, the skew of dependent variables as well as the disproportionate number of students who received no nominations on one or more of the relevant items required the use of multilevel zero-inflated negative binomial (ZINB) models. For the second series of analyses, which pertained to

the relationship between bullying involvement and student sociometric status, the dependent variable was categorical. Thus, multilevel multinomial logistic regression models were used. For the third series of analyses, which pertained to the relationship between bullying involvement and teacher ratings of student social influence, the dependent variables were interval scaled and normally distributed. Thus, conventional hierarchical linear models (HLMs) were used. The final series of analyses pertained to the relationship between bullying involvement and peer group associations. Multilevel multinomial logistic regression modeling was used in these analyses. In all four sets of analyses, not-identified students were used as the reference group. Post hoc tests of bully and bully-victim coefficient equivalence were based on likelihood-ratio tests in situations where model fitting revealed no variation in the corresponding Level 2 parameters. In situations where model fitting revealed evidence of nonzero random-effect terms, equivalence was evaluated using comparisons of nested models' sample-size-adjusted AIC statistics (e.g., Burnham & Anderson, 2004).

Descriptive statistics for key dependent variables along with the cross-classification of sociometric status by bullying-involvement subtype are presented in Table 2. Table 2 shows that 42% of boys and 54% of girls were not identified as being involved in bullying, 13% of boys and 10% of girls were identified as bullies, 20% of boys and 18% of girls were identified as victims, and 25% of boys and 18% of girls were identified as bully-victims.

Results

Peer Nominations

The first aim of this study was to investigate whether bullying-involvement subtypes (i.e., bullies, victims, bully-victims) were perceived by peers as being different on interpersonal factors (e.g., aggression, prosocial skills, social prominence, internalizing behavior). Consistent with the two

social worlds of aggression hypothesis, we were particularly interested in whether bullies were viewed as having more favorable or socially valued social features as compared to bully-victims. Accordingly, the first set of analyses examined the relationship between bullying-involvement subtypes and peer nominations for social and behavioral characteristics.

Table 3 contains the coefficients from four separate ZINB models relating the boys' bullying involvement to the number of peer nominations they received. The interpretation of the parameter estimates parallels the interpretation of coefficients obtained from regular (i.e., single-level) ZINB models (e.g., Long, 1997): the fixed-effect coefficients in the topmost section of the table pertain to the log odds that bullies, bully-victims, and victims received zero nominations for the corresponding outcome relative to not-identified students, while the fixed-effect coefficients in the middle portion of the table pertain to the expected number of nominations received by the various bullying-involvement types, adjusting for their probability of receiving any nominations. The corresponding random-effect estimates are presented in the lowermost portion of the table. Where statistically significant between-classroom variation was found, the classroom-level zero inflation logistic thresholds and negative binomial means were allowed to vary freely.

Table 3 summarizes differences in peer behavioral assessments in relation to bullying involvement type for boys. From the zero inflation portion of the model for the aggression factor, it can be seen that boy bullies, bully-victims, and victims were all more likely to receive any nominations than not-identified boys ($p < .01$ for each). In the regular negative binomial portion of the model, boy bullies and bully-victims also received more nominations for aggression than not-identified boys ($p < .001$). However, post hoc tests revealed that there were no statistically significant differences between bullies and bully-victims in this regard. For the prosocial factor, bully-

TABLE 3. Bullying Involvement of Second-Grade Boys and Peer Nominations (HGLM Fixed- and Random-Effect Estimates)

Variable/Model Parameter	Aggression		Prosocial		Social Prominence		Internalizing	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates—zero inflation portion of model:								
Bully	−2.735	.841**	−.445	.670	−.287	.589	.205	.541
Victim	−.920	.338**	.424	.410	.186	.446	−1.958	.804*
Bully-victim	−2.328	.464***	1.187	.462*	.435	.368	−.858	.448 ⁺
Mean zero inflation parameter	.095	.202	−1.433	.261***	−1.587	.232***	−1.199	.284***
Fixed-effect estimates—negative binomial portion of model:								
Bully	1.097	.198***	−.276	.236	.308	.230	−.160	.161
Victim	.047	.200	−.096	.161	−.435	.207*	.574	.176**
Bully-victim	1.390	.171***	−.332	.235	.042	.224	.562	.150***
Classroom mean intercept	3.377	.128***	4.257	.118***	4.193	.115***	3.197	.095***
Negative binomial dispersion parameter	.668	.054***	.722	.059***	.841	.072***	.435	.040***
Random-effect estimates—between-classroom residual variances/covariances:								
Zero inflation parameters	.000	...	.000	...	.000	...	.000	...
Negative binomial means	.000	...	.000	...	.000	...	.146	.052**
NB means/ZI parameters	.000	...	.000	...	.000	...	.000	...

NOTE.—*N* = 240 boys. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors.

^aIndicates that corresponding parameter was restricted to value shown (as determined by model fitting).

⁺*p* < .10.

**p* < .05.

***p* < .01.

****p* < .001.

victims were more likely to have received zero nominations for this item than not-identified boys ($p < .05$). Likelihood ratio tests revealed that the bully and bully-victim coefficients from the zero inflation portion of the model are statistically different from one another ($p < .01$). Thus, boy bully-victims appear to have been more likely than boy bullies to receive no nominations for prosocial skills. For social prominence, no significant differences were found for boys across the different bullying-involvement categories for the zero inflation portion of the model. In terms of the number of nominations received, however, the data indicate that victims were less socially prominent than not-identified boys ($p < .05$). Finally, boy victims were less likely to receive zero nominations for the internalizing factor than not-identified boys. In the regular neg-

ative binomial portion of the model, boy victims and bully-victims were perceived to be more internalizing than not-identified boys ($p < .01$ for both). Post hoc tests indicated that the coefficients for boy bullies and bully-victims were statistically different from one another in this portion of the model.

Table 4 presents the parameter estimates obtained from fitting a parallel series of ZINB models to the girl subsample. For the aggression factor, among girls who received any nominations, post hoc tests indicated that girl bullies received fewer nominations than girl bully-victims in the regular negative binomial portion of the model. Post hoc tests also indicated that bully-victims were more aggressive than victims. For the prosocial factor, girl bullies and bully-victims were more likely to receive zero peer nominations than not-

TABLE 4. Bullying Involvement of Second-Grade Girls and Peer Nominations (HGLM Fixed- and Random-Effect Estimates)

Variable/Model Parameter	Aggression		Prosocial		Social Prominence		Internalizing	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates—zero inflation portion of model:								
Bully	−2.122	.637***	1.088	.520*	.259	.531	.272	.527
Victim	.332	.375	.032	.493	.763	.291**	−2.165	.681**
Bully-victim	−2.015	.490***	1.844	.479***	.826	.311**	−.516	.439
Mean zero inflation parameter	−.067	.230	−2.248	.270***	−1.619	.184***	−1.763	.343***
Fixed-effect estimates—negative binomial portion of model:								
Bully	.914	.343**	−.590	.210**	.001	.140	−.348	.198+
Victim	.318	.186+	−.191	.181	−.041	.173	.451	.109***
Bully-victim	1.466	.159***	−.498	.185**	−.093	.175	.868	.133***
Classroom mean intercept	3.257	.102***	4.629	.081***	3.923	.112***	3.348	.107***
Negative binomial dispersion parameter	.599	.061***	.635	.043***	.560	.062***	.436	.050***
Random-effect estimates—between-classroom residual variances/covariances:								
Zero inflation parameters	.780	.461+	.000	... ^a	.000	...	1.294	.653*
Negative binomial means	.135	.061*	.000	...	.094	.051+	.127	.060*
NB means/ZI parameters	.148	.132+	.000	...	.000	...	−.187	.160

NOTE.—*N* = 285 girls. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors.

^aIndicates that corresponding parameter was restricted to value shown (as determined by model fitting).

+*p* < .10.

**p* < .05.

***p* < .01.

****p* < .001.

involved students (*p* < .05 for both). However, post hoc tests revealed that the difference between bullies and bully-victims that was evident for boys with regard to prosocial skills was not apparent for girls. Furthermore, the parameter estimates in the regular negative binomial portion of the model indicate that among girls likely to receive any nominations, girl bullies and bully-victims received about equally fewer nominations relative to not-identified girls (*p* < .01 for both). For the social prominence factor, girl victims and girl bully-victims differed from not-identified girls with respect to their chance of receiving any nominations (*p* < .01 for both), although in the regular negative binomial portion of the model, no corresponding significant differences were found. For the internalizing factor, girl vic-

tims were less likely than not-identified girls to receive zero nominations (*p* < .01). Furthermore, girl bully-victims and victims who received any nominations for internalizing received more nominations than not-identified girls (*p* < .001 for both). Post hoc tests revealed that, as was the case for boys, girl bully-victims received more nominations for internalizing than girl bullies. Similar tests also indicated that girl bully-victims are more internalizing than girl victims.

In summary, as shown by the mean scores summarized in Table 2, bully-involvement subtypes were similar on some peer-assessed characteristics and different on others in ways that are consistent with the two social worlds of aggression hypothesis. Bullies and bully-victims were similar to each other with respect to aggres-

TABLE 5. Bullying Involvement of Second-Grade Boys and Sociometric Status (HGLM Fixed- and Random-Effect Estimates)

Variable/Model Parameter	Popular vs. Average		Rejected vs. Average		Neglected vs. Average		Controversial vs. Average	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates:								
Bully	.226	.574	1.580	.650*	-.817	.847	1.329	.653*
Victim	-.554	.447	-.499	.732	-.044	.447	-1.022	.830
Bully-victim	-1.243	.561*	1.721	.497**	-.717	.542	.176	.600
Classroom mean logistic cut-point	-.092	.248	-1.447	.393***	-.435	.274	-1.329	.375***
Random-effect estimates—between-classroom logistic cut-point								
residual variances	.000	... ^a	.000	...	.000	...	.000	...

NOTE.—*N* = 247 boys. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors.

^aIndicates that corresponding parameter was restricted to value shown (as determined by model fitting).

**p* < .05.

***p* < .01.

****p* < .001.

sion, although girl bully-victims (102.6) were slightly more aggressive than girl bullies (68.2). Boy bully-victims (28.73) had lower levels of prosocial skills than bullies (46.86), who were not significantly different from victims (47.36) or not-identified boys (57.42). In addition, bullies and bully-victims differed from one another in terms of internalizing behavior. Boy (40.49) and girl (66.94) bully-victims were higher than boy (16.99) and girl bullies (14.89) on this construct.

Sociometric Status

The second research aim was to examine whether bullying-involvement subtypes differ on sociometric status. To examine the two social worlds of aggression hypothesis, we were particularly interested in whether bullies had distinctly more favorable levels of peer acceptance as compared to bully-victims. Accordingly, the second set of analyses explored whether bullies, victims, or bully-victims were more or less likely to have popular, rejected, neglected, controversial, or average status as derived from peer nominations of being liked or disliked.

Tables 5 and 6 contain coefficients from

fitting multilevel multinomial logistic regression models to sociometric status categories. Our model-fitting procedures indicated that there was no significant classroom-level variation in our dependent variables; thus our classroom-level variance parameters were set to zero for these models.

The coefficients in Table 5 indicate that boy bullies were roughly 4.9 times¹ more likely to have rejected sociometric status rather than average sociometric status, and 3.8 times more likely to be controversial than average, relative to not-identified boys (*p* < .05 for both). Bully-victims were 5.6 times more likely to be rejected versus average than were not-identified boys (*p* < .01). The data provided no indication that boy bullies were less likely to have popular sociometric status than not-identified boys. However, boy bully-victims were 3.5 times less likely to have popular versus average sociometric status, relative to not-identified boys (*p* < .05). Post hoc tests revealed that boy bullies and bully-victims were statistically different with respect to popular status (*p* < .05), and that boy bully-victims were more likely to be socially rejected than boy victims (*p* < .01).

Coefficients for the corresponding girls'

TABLE 6. Bullying Involvement of Second-Grade Girls and Sociometric Status (HGLM Fixed- and Random-Effect Estimates)

Variable/Model Parameter	Popular vs. Average		Rejected vs. Average		Neglected vs. Average		Controversial vs. Average	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates:								
Bully	.185	.506	.879	.891	.031	.712	1.466	.627*
Victim	−.051	.391	1.048	.659	.383	.476	.314	.647
Bully-victim	−.102	.478	2.893	.562***	.591	.538	.996	.631
Classroom mean logistic cut-point	−.185	.184	−2.383	.427***	−1.130	.251***	−1.872	.340***
Random-effect estimates—between-classroom logistic cut-point								
residual variances	.000	... ^a	.000	...	.000	...	.000	...

NOTE.—*N* = 290 girls. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors.

^aIndicates that corresponding parameter was restricted to value shown (as determined by model fitting).

**p* < .05.

****p* < .001.

multilevel multinomial logistic regression models appear in Table 6. Girl bullies were 4.3 times more likely to have controversial than average status relative to not-identified girls (*p* < .05). The data also indicate that girl bully-victims were six times more likely to be rejected relative to not-identified girls, while no corresponding effect was statistically significant for bullies. Post hoc tests indicated that the girl bully and bully-victim coefficients differ for this contrast (*p* < .01), and that bully-victims are more socially rejected than victims (*p* < .05).

In summary, the findings from our logistic regression models correspond with differences in the percentages of bullies and bully-victims in the sociometric status categories presented in Table 2 and are consistent with the two social worlds of aggression hypothesis. Specifically, 7.7% of not-identified boys were rejected as compared to 25% of boy bullies and 41% of boy bully-victims. Likewise, 37.7% of girl bully-victims had rejected status as compared to 3.8% of not-identified girls, while 20.7% of girl bullies had controversial status as compared to 6.4% of not-identified girls. Nonetheless, bullies and bully-victims were distinct from each other. On this count, the percentage of boy bullies (25%) who had popular status was similar to

that of not-identified boys (29.8%), while very few boy bully-victims (8.2%) were identified as sociometrically popular. Furthermore, 37.7% of girl bully-victims were rejected as compared to only 6.9% of girl bullies. In addition, the data also suggest that, regardless of gender, both boy (21.9%) and girl bullies (20.7%) had elevated levels of controversial status, while boy (9.8%) and girl (9.4%) bully-victims did not. Collectively, these findings suggest that bullies are more likely to be both liked and disliked by some peers (i.e., controversial status), while bully-victims tend to be highly disliked (i.e., rejected status).

Social Influence

The third research aim was to examine differences in bullying-involvement subtypes in relation to teacher ratings of interpersonal characteristics that pertain to social influence. To explore the two social worlds of aggression hypothesis, we were particularly interested in whether bullies had higher levels of social influence than bully-victims. To do this, the third set of analyses investigated whether bullies, victims, and bully-victims differed from one another and from not-identified students

TABLE 7. Bullying Involvement of Second-Grade Boys and Social Influence (HGLM Fixed- and Random-Effect Estimates)

Variable/Model Parameter	Wins a Lot		Good at Sports		Class Leader		Gets Own Way	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates:								
Bully	.108	.211	.439	.264 ⁺	.297	.342	−.064	.214
Victim	−.679	.250**	−.997	.288**	.142	.363	−.229	.155
Bully-victim	−.472	.223*	−.437	.270	−.587	.408	.026	.202
Classroom mean intercept	4.855	.151***	5.283	.164***	4.078	.270***	4.494	.134***
Random-effect estimates—								
between-classroom								
residual variances	.244	.091**	.359	.122**	0.000	.. ^a	.235	.071**

NOTE.—*N* = 245 boys. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors.

^aIndicates that corresponding parameter was restricted to value shown (as determined by model fitting).

⁺*p* < .10.

**p* < .05.

***p* < .01.

****p* < .001.

on teacher ratings of being a class leader, winning a lot, being good at sports, and/or getting their way.

Tables 7 and 8 contain the parameter estimates for HLMs relating student social influence to bullying involvement. Coefficients from the HLMs for male students (see Table 7) show that boy bullies, bully-victims, and victims were not statistically different from not-identified boys on mean ratings of class leader or gets own way (*p* >

.05). In contrast, bully-victims and victims were rated significantly lower than not-identified boys on wins a lot (*p* < .05 for both), while bullies were not. Victims were also rated lower on good at sports (*p* < .01) than not-identified boys. Post hoc tests suggested that victims were significantly lower on good at sports than bully-victims, and that bully-victims were statistically lower on wins a lot than bullies.

The corresponding HLMs in Table 8 in-

TABLE 8. Bullying Involvement of Second-Grade Girls and Social Influence (HGLM Fixed- and Random-Effect Estimates)

Variable/Model Parameter	Wins a Lot		Good at Sports		Class Leader		Gets Own Way	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates:								
Bully	.512	.208*	.937	.332**	−.044	.404	.419	.279
Victim	−.363	.195 ⁺	−.164	.249	−.717	.306*	−.479	.193*
Bully-victim	−.450	.287	−.560	.274*	−.522	.422	−.086	.270
Classroom mean intercept	4.743	.169***	4.538	.150***	4.483	.212***	4.664	.170***
Random-effect estimates—								
between-classroom								
residual variances	.503	.191**	.306	.125*	.736	.288*	.394	.108***

NOTE.—*N* = 290 girls. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors.

⁺*p* < .10.

**p* < .05.

***p* < .01.

****p* < .001.

dicating that girl bullies had higher mean ratings on wins a lot than not-identified girls ($p < .05$). Although girl bully-victims did not differ from not-identified girls on this measure, post hoc tests revealed that bully-victims did differ from bullies. Girl bullies also had higher mean ratings on good at sports than not-identified girls ($p < .01$), and post hoc tests indicated that they differed from bully-victims on this item. Girl victims had lower mean ratings than not-involved girls on class leader and gets own way ($p < .05$ for both), while post hoc tests suggested that girl victims and bully-victims differed with respect to gets own way.

In sum, bullies and bully-victims did differ somewhat on social influence indices that correspond with the two social worlds of aggression hypothesis. As reflected by the mean scores on teacher ratings (Table 2), boy bullies (4.94) and not-identified boys (4.93) were higher on wins a lot as compared to boy bully-victims (4.39) and boy victims (4.16). Similarly, girl bullies (5.21) and not-identified girls (4.69) were higher than bully-victims (4.23) on this same construct. In addition, girl bullies (5.48) were higher than bully-victims (4.02) and all other girls on good at sports and had significantly higher ratings (5.07) for gets own way than those of the girl victims (4.21).

Predominant Peer Group Bullying-Involvement Composition

The fourth research aim was to examine differences in the peer associations of bullying-involvement subtypes. To investigate the two social worlds of aggression hypothesis, we were particularly interested in clarifying whether bullies were more likely to associate predominantly with peers who were not involved in bullying and, conversely, whether bully-victims were more likely to associate in predominantly bully and predominantly victim groups. To do this, peer groups were iden-

tified with the SCM procedures, and bullying-involvement classifications for all group members were aggregated to classify each peer group in three distinct ways. First, each group was dichotomously classified as either predominantly bully (i.e., over 50% of members identified as either bullies or bully-victims) or not predominantly bully. Next, each group was classified as predominantly victim (i.e., over 50% of members identified as victims or bully-victims) or not predominantly victim. Finally, each group was classified as predominantly involved or predominantly not involved (i.e., over 50% of members were not identified as bullies, bully-victims, or victims).

For this analysis, the sample consisted of 487 students (221 boys, 266 girls) in 141 peer groups. Our peer group analyses excluded 50 of our original 537 students because they were social isolates (i.e., did not have a peer group). Chi-square tests revealed that for boys ($\chi^2(3, N = 247) = 1.61, p = .658$) as well as girls ($\chi^2(3, N = 290) = 4.25, p = .236$), there was no association between bullying status and being a social isolate. Cell-wise exact tests (e.g., Bergman, Magnusson, & El-Khoury, 2003) corroborated this lack of association. For our peer group analysis sample, the maximum group size was 10 students, and the mean group size was 3.3 students. Of these 141 peer groups, 46 (32.6% of total) were all-boy groups, 61 (43.3% of total) were all-girl groups, and 34 (24.1% of total) were mixed boy/girl groups. The all-boy group sizes ranged from 2 to 8 and had a mean size of 3.3; the all-girl group sizes ranged from 2 to 10 and had a mean size of 2.9; the mixed boy/girl group sizes ranged from 2 to 10 and had a mean size of 3.8.

Table 9 presents simple bivariate cross-tabulations of student bullying-involvement type by the predominance of peers in their peer group that had a Z-score greater than .50 for the bullying-involvement type of interest. Each peer group was characterized in three distinct ways: predominantly bully versus

TABLE 9. Bullying Involvement of Second-Grade Boys and Girls and Their Primary Peer Group Composition (Simple Cross-Tabulations with Exact Cell Tests)

	Not Predom. Bullies	Predom. Bullies	Not Predom. Victims	Predom. Victims	Predom. Involved	Predom. Not Involved
Boys:						
Bully	17	12	26	-3	12	17
Victim	+43	-2	28	17	17	28
Bully-victim	-14	+38	-15	+37	+42	-10
Not identified	+88	-7	+89	-6	-8	87
Girls:						
Bully	-13	+15	25	-3	15	13
Victim	41	-4	-18	+27	+28	-17
Bully-victim	-22	+29	-17	+34	+39	-12
Not identified	+134	-8	+130	-12	-16	+126

NOTE.— $N = 221$ boys, $N = 266$ girls. Chi-square test statistics and significance levels for various comparisons are presented in text. In the table column headings, "Predom." is used as an abbreviation for "Predominantly." +/– indicates more/fewer cases in cell than expected by chance (exact-wise cell test, $p < .05$).

not predominantly bully, predominantly victim versus not predominantly victim, and predominantly not involved versus predominantly involved. As noted above, in predominantly bully groups, over 50% of members were either bullies or bully-victims. In predominantly victim groups, over 50% of members were either victims or bully-victims. In predominantly not-involved groups, over 50% of members were not identified as being involved in bullying as either a bully, victim, or bully-victim. Separate cross-classifications are presented for the boy and girl subsamples. The cross-tabulations in Table 9 provide an indication of whether or not each cell contains greater or fewer observations (denoted by "+" or "-" before the actual cell count) than would be expected by chance ($p < .05$; obtained via cell-specific exact tests; e.g., Bergman et al., 2003).

The cross-tabulations for the boy subsample in the top portion of Table 9 reveal that only 41.4% of bullies were in predominantly bully groups (i.e., over 50% of members are bullies or bully-victims) versus 73.1% for bully-victims ($\chi^2(1, N = 52) = 7.88, p < .005$). Similarly, only 10.3% of boy bullies were in predominantly victim groups (i.e., over 50% of members are victims or bully-victims) versus 71.2% for boy bully-victims ($\chi^2(1, N = 52) = 30.51, p < .001$). Finally, the data indicate that 58.6%

of boy bullies were in predominantly not-identified groups (i.e., over 50% of members were not bullies, bully-victims, or victims) versus 19.2% for bully-victims ($\chi^2(1, N = 52) = 12.87, p < .001$). A series of related chi-square tests revealed that our boy bullying-involvement types were all statistically different from one another ($p < .01$) with respect to the predominance of members of their peer groups who were bullies, victims, and not-identified students, with the exception of boy bullies versus not-identified boys, which did not differ with respect to whether or not their peer groups were composed predominantly of peers who were high in victimization.

For the girl cross-tabulations in the lower half of Table 9, bullies and bully-victims did not differ in terms of membership in predominantly bully groups. However, they did differ on predominantly victim groups, with 66.7% for girl bully-victims versus 10.7% for girl bullies ($\chi^2(1, N = 28) = 25.21, p < .001$). Also, girl bullies and bully-victims differed in terms of affiliating in peer groups that were composed predominantly of peers who were not identified as being involved in bullying, with 46.4% for girl bullies versus 23.5% for girl bully-victims ($\chi^2(1, N = 51) = 4.30, p < .050$). A related series of chi-square tests revealed that girls' peer groups varied less

TABLE 10. Bullying Involvement of Second-Grade Boys and Their Primary Group Composition (HGLM Fixed- and Random-Effect Estimates for Three Separate Multinomial Logistic Regression Models)

Variable/Parameter	Predom. Bully vs. Not Predom. Bully		Predom. Victim vs. Not Predom. Victim		Predom. Not Involved vs. Predom. Involved	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates:						
Bully	2.385	.618***	-.074	.781	.074	.682
Victim	-.968	1.037	2.433	.936**	-2.433	.936**
Bully-victim	3.581	.634***	3.587	.562***	-3.587	.562***
Classroom mean logistic cut-point	-3.098	.646***	-3.860	.837***	3.860	.837***
Random-effect estimates—between- classroom logistic cut-point residual variances						
	3.149	1.637 ⁺	7.570	4.122 ⁺	7.568	4.119 ⁺

NOTE.—*N* = 221 boys. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors. In the table column headings, “Predom.” is used as an abbreviation for “Predominantly.”

⁺*p* < .10.
^{**}*p* < .01.
^{***}*p* < .001.

by bullying-involvement type than boys. Girl bully-victims and victims did not differ from one another with respect to the extent that their peer groups were composed predominantly of victims. They also did not differ with respect to the extent that they were members of groups that were composed primarily of not-identified peers.

Tables 10 and 11 extend the cross-tabular

analyses derived from Table 9 by adopting a multilevel logistic regression modeling framework and allowing the associated logistic regression cut-points to vary at the classroom level. These models thereby allow for statistical tests of bullying-involvement effects that reflect the clustering of students by classroom, while also adjusting effect estimates for classroom-level variation in the

TABLE 11. Bullying Involvement of Second-Grade Girls and Their Primary Group Composition (HGLM Fixed- and Random-Effect Estimates for Three Separate Multinomial Logistic Regression Models)

Variable/Parameter	Predom. Bully vs. Not Predom. Bully		Predom. Victim vs. Not Predom. Victim		Predom. Not Involved vs. Predom. Involved	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed-effect estimates:						
Bully	3.082	.618***	-.097	.996	.096	.997
Victim	.881	.985	4.069	.529***	-4.071	.530***
Bully-victim	3.577	.687***	3.710	1.042***	-3.713	1.044***
Classroom mean logistic cut-point	-4.445	.943***	-4.387	1.009***	4.395	1.013***
Random-effect estimates—between- classroom logistic cut-point residual variances						
	5.948	2.653*	13.498	5.797*	13.555	5.852*

NOTE.—*N* = 266 girls. The reference category for bullying involvement is “not identified.” Standard errors adjust for clustering in the sample. Where level 2 (classroom-level) variances were allowed to vary, standard errors are robust standard errors. In the table column headings, “Predom.” is used as an abbreviation for “Predominantly.”

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

dependent variables. From Table 10 it can be seen that boy bullies and bully-victims were more likely than not-identified boys to be in predominantly bully groups versus not predominantly bully groups ($p < .001$). The second model in Table 10 indicates that boy bully-victims were much more likely than not-identified boys to be in predominantly victim groups ($p < .01$). Post hoc tests indicated that the corresponding bully and bully-victim coefficients differ from one another, while the bully-victim and victim coefficients do not. The third model in Table 10 indicates that boy bullies and not-identified boys did not differ with regard to whether or not their primary peer groups were composed predominantly of not-identified peers, while the opposite was the case for victims and bully-victims ($p < .01$ for both contrasts). Post hoc tests revealed that the associated coefficients for boy bully-victims and bullies are statistically different, while the bully-victim and victim coefficients are not.

Table 11 provides parameter estimates for the parallel series of models applied to the girl subsample. The first model indicates that girl bullies and bully-victims were more likely than not-identified girls to be in predominantly bully groups (i.e., groups composed primarily of bullies or bully-victims). The second model reveals that girl bully-victims were more likely than not-identified girls to be in predominantly victim groups (i.e., bully-victims and victims) ($p < .001$). The corresponding effect for bullies is miniscule and not statistically significant, while post hoc tests indicated that the associated bully and bully-victim coefficients differ, and indicate that the effects for bully-victims and victims are statistically different from one another. Finally, the third model in Table 11 indicates that girl bullies and not-identified girls did not differ with regard to whether or not their primary peer groups were predominantly composed of not-identified peers (while girl victims and girl bully-victims were more likely than not-identified girls to be members of groups that were composed

predominantly of peers who were involved). Post hoc tests revealed that the coefficients for bully-victims and bullies are statistically different.

In summary, the findings on the peer group membership of bullies and bully-victims are important for clarifying whether the peer affiliations of children who are involved in bullying reflect the prevailing social default/deviant peer group hypothesis or the two social worlds of aggression hypothesis. The social default/deviant peer group perspective suggests that bullies and bully-victims are not well accepted by conventional peers and are relegated to affiliating together because they are socially marginalized by their nonaggressive classmates. In contrast, the two social worlds of aggression hypothesis suggests that some aggressive children (i.e., those who are characterized by the general social and behavioral features of bullies) tend to be fairly well integrated into the social system of conventional peers and do not affiliate with aggressive classmates who are socially marginalized (i.e., peers who are characterized by the general social and behavioral features of bully-victims).

The findings presented in Tables 10 and 11 suggest that the social default/deviant peer group hypothesis does not fully capture the complexity of the social organization of second-grade classrooms in relation to bullying involvement and, instead, indicate that the two social worlds of aggression hypothesis may provide a more complete view of the placement of bullies and bully-victims within their classrooms' social networks. This is best illustrated with the cross-tabular analyses presented in Table 9. For boy bullies, looking across the row at the three distinct classifications of their peer groups (i.e., predominantly bullies, predominantly victims, predominantly not involved), it is clear that they affiliate almost exclusively in predominantly bully (41%) or predominantly not-involved groups (59%). Only 10% of bullies were in groups that were composed predominantly of chil-

dren who were victims (i.e., children who were identified as either bully-victims or victims). In contrast, for boy bully-victims, looking across the rows, less than 20% were in predominantly not-involved groups and over 70% were in groups that are predominantly victims and predominantly bullies. These results suggest that boy bully-victims tend to associate with other peers who are victims (i.e., bully-victims, victims), while bullies tend to associate primarily with bullies and not-involved children.

For girls, differences in the affiliations of bullies and bully-victims were clearly evident, but were somewhat less distinct than they were for boys. Generally, girl bullies tended to affiliate in predominantly bully groups (54%) or in predominantly not-involved groups (46%). Similar to boys, only 11% of girl bullies were in predominantly victim groups (i.e., groups composed of children who identified either as victims or bully-victims). In contrast, girl bully-victims tended to be in both predominantly bully (57%) and predominantly victim groups (66%), and only 23% were in predominantly not-involved groups. These results reflect the findings of the boys and suggest that girl bully-victims tend to associate with other bully-victims, while girl bullies associate with other bullies and not-involved peers. In sum, the results for boys and girls suggest that bully involvement is strongly related to the organization of social networks in second-grade classrooms. Bullies affiliate with other bullies and with not-involved children, while bully-victims tend to affiliate with other children who are identified as being victims (i.e., victims and bully-victims).

Summary of Findings in Support of the Two Social Worlds Hypothesis

The current findings generally support the two social worlds hypothesis by suggesting that bullies and bully-victims have somewhat distinct social features and corresponding patterns of peer group mem-

bership. The first aim of this study was to examine the two social worlds hypothesis by determining whether classmates viewed bullies as having more favorable social behavior than bully-victims. On this count, both bullies and victims had elevated levels of aggressive behavior, but boy bullies had higher levels of prosocial behavior than boy bully-victims, and boy and girl bully-victims had higher levels of internalizing behavior than boy and girl bullies. The second aim of this study was to examine the two social worlds hypothesis by determining whether bullies had more favorable levels of peer acceptance as compared to bully-victims. Although both bullies and bully-victims had elevated levels of rejected sociometric status, bullies had higher levels of popular or controversial status as compared to bully-victims. This suggests that bullies are both liked and disliked by peers, whereas bully-victims are highly disliked by peers. The third aim of this study was to examine the two social worlds hypothesis by determining whether bullies had higher levels of teacher-rated social influence as compared to bully-victims. While there were no differences between bullies and bully-victims for class leader or gets own way, boy and girl bullies were higher on teacher ratings of wins a lot and girl bullies were higher than bully-victims on good at sports. Thus, while bullies and bully-victims did not differ on the teacher-rated item leader (as expected), they did differ on two other highly socially valued characteristics that are consistent with the two social worlds hypothesis. The fourth aim of this study was to examine the two social worlds hypothesis by determining whether bullies and bully-victims tend to be members of different types of peer groups. The results indicate that bullies do not associate in groups that contain high concentrations of peers who are identified as victims (i.e., victims, bully-victims), while bully-victims do. In contrast, relatively few bully-victims are members of groups that are composed predominantly

of not-involved peers, while nearly 50% or more of bullies tend to be in predominantly not-involved groups.

Collectively, the findings for the four research aims provide convergent evidence that is highly consistent with the two social worlds hypothesis. Although they are aggressive, bullies are viewed by peers as having more favorable behavioral characteristics than bully-victims. Bullies are also viewed by teachers as having higher levels of socially valued characteristics that are associated with social influence and are more likely to have popular or controversial status as compared to bully-victims. In addition, bullies tend to be in social networks that are distinct from those of bully-victims and are more likely to be integrated into peer groups that are composed of peers who are predominantly not involved. However, to the degree that bully-victims are highly disliked and tend to affiliate with others who have few socially valued characteristics and are also at risk of being victims (i.e., bully-victims, victims), the current findings are consistent with the social default/deviant peer group hypothesis and suggest that bully-victims may be relegated to a social world that is composed primarily of peers who are also socially marginalized.

Discussion

The goal of this study was to examine whether the two social worlds of aggression hypothesis could be extended to bullying. According to this hypothesis (Farmer & Xie, 2007), there are two types of aggressive children who have distinct social characteristics and peer affiliations. Some aggressive children use both prosocial and aggressive strategies to control social resources in the classroom. They have socially valued characteristics that are associated with social influence, are both highly liked and disliked by peers, and often affiliate with conventional peers who are not involved in bullying (de Bruyn & Cillessen,

2006; Estell et al., 2007; Hawley, 2002; Vailancourt & Hymel, 2006). In contrast, other aggressive children are socially marginalized. These children have problematic social behaviors and few socially valued characteristics, they are more likely to be identified as having rejected sociometric status and less likely to have popular sociometric status, and they are less likely to associate with conventional peers and are more likely to be in peer groups that are composed primarily of other socially marginalized children (Bagwell et al., 2000; Farmer et al., 2002, 2003; Lease et al., 2002). It was expected that bully-victims would be similar to socially marginalized aggressive children in terms of their social characteristics and peer affiliations, while bullies were expected to have more favorable characteristics and were expected to be well integrated into the social ecology with conventional peers who are uninvolved directly in bullying (see Rodkin & Hodges, 2003).

Generally, the current findings support the two social worlds hypothesis for bullying. Specifically, bully and bully-victims differed on key social characteristics and peer affiliations that were consistent with the findings for subtypes of aggressive children. Bullies did not differ from not-identified children in terms of being identified as having popular sociometric status. However, consistent with the expectation that they are likely to be highly liked by some peers and disliked by others, bullies had elevated levels of controversial sociometric status. In addition, bullies tended to affiliate in peer groups that were composed predominantly of peers who were not identified as being involved in bullying. Furthermore, bullies were rated as being just as socially influential as children who were not identified as being involved in bullying. In contrast, bully-victims appeared to be less socially influential and were socially marginalized both in terms of their sociometric status and their affiliative patterns. Also, they were more likely to be nomi-

nated by peers for internalizing behavior and less likely to be nominated for prosocial skills. While there were some gender differences, the overall findings were similar for boys and girls.

Collectively, these results build upon and extend current perspectives of the social dynamics of bullying in elementary classrooms. Other studies have found that bullies, bully-victims, and victims have different patterns of social relationships and social behaviors (e.g., Perren & Alsaker, 2006; Salmivalli et al., 1997; Veenstra et al., 2005). The current work reflects and broadens this view by showing that while both bullies and bully-victims tend to have higher rates of being disliked by peers, they also tend to be distinguished by different sociometric status classifications, social reputations as reflected by peer nominations, and peer affiliations. Bullies appear to be disliked by some but liked by others, and they are integrated into the broader social system that includes many peers who are not involved in bullying. In comparison, the social world of bully-victims appears to be constrained to social affiliations that are predominantly with other peers who are involved in bullying.

Differences in the sociometric status of bullying-involvement subtypes may be related to processes of social influence/dominance and may help explain why these groups experience distinct social worlds. Compared to victims and bully-victims, bullies were more likely to be viewed by teachers and peers as displaying some interpersonal characteristics that are viewed as socially desirable and influential (e.g., wins a lot, good at sports, prosocial skills). Bullying involves focused efforts to solidify one's position in the classroom social structure and to establish social dominance (Olweus, 2003). Socially dominant children may be both highly liked and disliked by peers (Lease et al., 2002; Vaillancourt et al., 2003). Therefore, it follows that bullies would be both liked and disliked by peers. It also follows that youth who are both

victimized and involved in bullying are the most vulnerable children and would have elevated levels of social rejection and be unlikely to have popular social status. The view that bullies are socially influential children and bully-victims are among the most socially marginalized may help explain why the two groups share high rates of externalizing behavior but differ on internalizing behavior. Bullies may use aggression to control their social worlds, while bully-victims may be fighting against a social system that keeps them on the periphery.

Differences in the power dynamics of bullies and bully-victims may have important implications for understanding their affiliative patterns. Victimized and perceived unpopular youth tend to associate with socially marginalized peers (Bagwell et al., 2000; Salmivalli et al., 1997). In studies that characterize peer groups according to the proportion of peers who are aggressive or popular, it has been shown that perceived popular and unpopular aggressive youth do not tend to associate together (Farmer et al., 2003). Using a similar approach to characterize groups in terms of bullying involvement, the current investigation suggests that bullies and bully-victims affiliate with distinct types of peers.

For boys, bully-victims, but not bullies, were more likely to be members of groups that were characterized as being composed predominantly of children who were identified as being involved in bullying, victimization, or both. For girls, both bully-victims and bullies were more likely to be members of groups characterized as being predominantly bullies. However, girls who were bully-victims, but not bullies, were also more likely to be in predominantly victim groups. These results suggest that boys and girls who are bullies may have somewhat different patterns of affiliation. Boys who are bullies, but not bully-victims, appear to be well integrated into conventional social networks and do not differ from noninvolved children in terms of their

likelihood to associate with socially marginalized peers (i.e., bullies and victims). In contrast, girls who are bullies are not as likely to associate with victims as compared to bully-victims but are as likely to associate primarily with other bullies.

Developmental Implications

The two social worlds hypothesis may help clarify general ambiguity about social dynamic factors that contribute to involvement in bullying. While other studies have shown that there are subtypes of aggressive youth who are distinguished by levels of popularity and other indices of peer relations (e.g., Bierman, Smoot, & Aumiller, 1993; de Bruyn & Cillessen, 2006; Farmer et al., 2003), the present work builds upon prior research to extend existing conceptualizations about possible developmental processes and mechanisms that support and maintain bullying and victimization. The results of the current study provide three new perspectives that have important implications for understanding the social development of children and youth who are involved in bullying.

First, the current findings suggest that there may be at least two distinct ways in which peer social dynamics contribute to involvement in bullying and aggressive behavior. Consistent with the peer-rejection and social skills deficit framework, aggressive children who are viewed by teachers and peers as being both bullies and victims tend to be socially marginalized. These children are more likely to have lower levels of socially desirable characteristics, are rejected by peers, and associate primarily with peers who are also involved in bullying both as bullies and victims. These findings correspond with conceptualizations of bullies as socially incompetent children who are not well accepted by conventional peers and who respond to peer provocation in ways that lead to social roles and peer affiliations that sustain their problem behavior (see Arsenio & Lemerise, 2001; Crick

& Dodge, 1999). From this viewpoint, bully-victims are likely to have difficulties in behavioral regulation and social skills that contribute to poor peer relations that further support socially incompetent behavior and inhibit opportunities to develop affiliations with socially competent peers (Bagwell et al., 2000).

The social world of bullies, particularly for boys, provides a different picture of the mechanisms that may promote and sustain their bullying behavior. In contrast to bully-victims, the problem behavior of bullies does not appear to be supported by processes of social marginalization but rather by social dominance. These children do appear to have socially desirable characteristics, and they are more likely to associate with conventional peers. These findings fit well with conceptualizations that some bullies are socially skilled and dominant (Sutton et al., 2001; Vaillancourt et al., 2003). The broader point here is that bullies and bully-victims appear to have distinct social experiences that may contribute to qualitatively different pathways in the establishment and maintenance of bullying. There is a need for longitudinal research that examines how the two social worlds hypothesis is related to continuity and change in involvement in bullying across childhood and adolescence.

Second, differences in the peer affiliations of bullies and bully-victims provide new insight into the social default/deviant peer group hypothesis. In this second-grade sample, bully-victims tended to be socially marginalized and associated with other bullies and victims. This is consistent with a social default hypothesis in that it suggests that aggressive marginalized youth affiliate together. However, in contrast with the view that controversial status aggressive youth may be leaders of peer groups that are composed primarily of socially marginalized aggressive children (Bagwell et al., 2000), the current study suggests that bullies are socially dominant children who are integrated into the social system with

conventional peers and may be both highly liked and disliked. This corresponds with a recent study which shows that socially prominent aggressive children are viewed as being cool by a broad range of nonaggressive peers (Rodkin et al., 2006). It is possible that socially dominant bullies use aggression in ways that support and consolidate their social positions with prominent peers (Farmer et al., 2003; Pellegrini et al., 2007; Xie, Farmer, & Cairns, 2003). Therefore, rather than having a social world in which all bullies are marginalized and affiliate together because they are rejected by peers, it appears that the social default/deviant peer group hypothesis may help explain the developmental pathways of bully-victims but not bullies. Yet, it is also possible that in late elementary and middle school, bullies may become increasingly disliked by peers and gravitate to peers who were bully-victims in early elementary school. Longitudinal studies are needed to examine how involvement in bullying is related to patterns of social adjustment (e.g., sociometric status, social prominence, peer affiliations) across the school years.

Third, the current study suggests that when analyses are conducted separately for boys and girls, the social dynamics of bullying are fairly similar across gender. Thus, while boys have higher rates and mean levels of bullying involvement and physical aggression as compared to girls, it appears that at this age the social dynamics of bullying operate relatively the same for both genders. It should be noted that at this age children view bullying primarily as a physically aggressive act and do not tend to include indirect aggression in their conceptions of bullying (Smith, Cowie, Olafsson, & Liefhoghe, 2002). As girls approach adolescence there tends to be a decrease in their use of physical aggression and an increase in social aggression (Cairns & Cairns, 1994; Cillessen & Mayeux, 2004). Therefore, it is possible that processes of bullying that differentiate boys' and girls'

social adjustment do not emerge until the later elementary school years. Thus, longitudinal studies that separately examine boys' and girls' involvement in bullying in relation to social dynamic factors are needed across the elementary and middle school years.

Considerations for Intervention

As others have suggested (e.g., Olweus, 2003; Salmivalli et al., 1997; Vaillancourt et al., 2003), bullying is a relationship problem that includes the contributions of the social dynamics within the peer system. Accordingly, efforts to prevent or reduce bullying should include a focus on the children who are at risk for bullying involvement and on the social-contextual factors that support it (Pepler, 2006; Rodkin & Hodges, 2003). The current findings extend this perspective and suggest that bullying intervention efforts should take into consideration that bullies and bully-victims may bring distinct interpersonal characteristics and corresponding forms of peer support to the bullying process.

While more research is needed, it appears that bullies may have more favored social characteristics, are somewhat more influential in the social system, and may be supported by peers who are not directly involved in bullying. In such situations, teachers need to recognize that some socially prominent children may use their influence in ways that victimize others. To do this, it is helpful for teachers to be aware of the distinct peer groups within the social ecology and to understand which children are the prominent members of the various peer clusters and which children tend to support such youth. This information can be used to guide grouping strategies as well as a variety of classroom-management activities that can be used to proactively support the prosocial engagement of socially prominent aggressive youth (see Farmer, 2000).

In contrast, bully-victims appear to have less favorable social characteristics

and are likely to need social skills training and related instruction to help them develop more socially effective interpersonal strategies (see Asher & Coie, 1990; Bierman, 2004). In addition, such children appear to be poorly accepted by peers in general and are likely to be restricted to a social network with other bullies and victims who support their social difficulties (see Bagwell et al., 2000). Therefore, to complement social skills interventions, such children may also need interventions to help them develop productive and supportive relationships with peers who are not socially marginalized (see Bierman, 2004; Farmer, 2000; Rodkin & Hodges, 2003).

Limitations

The current study has four limitations that must be acknowledged. First, this study was conducted at a single time point and only with second graders. Therefore, while the findings yield new perspectives that may help clarify social developmental processes that contribute to the establishment and maintenance of bullying in the early elementary school years, it is not possible to examine such processes with the current dataset. It is only possible to interpret the potential meaning of the current results in relation to other developmental studies. Longitudinal studies are necessary to fully examine the meaningfulness of the two social worlds hypothesis for understanding the development and continuity of bullying behavior. Second, while the sample was relatively large for a study of social relations, the number of participants identified as bullies and victims was fairly small. Large datasets with more schools are needed to fully examine differences in subtypes and to also explore possible school effects. Third, while the data for the present study were strengthened by using multiple informants, there is a need to complement the survey data with observational studies of social processes and interactional patterns. It is possible that differences in this study reflect teachers' and peers' perceptions and not

actual differences in social behaviors and social contact. Fourth, the current analyses use traditional sociometric procedures (i.e., Coie et al., 1982) to classify children's social status in the peer group. While these procedures have the advantage of being consistent with the general research and intervention literature on peer acceptance and social skills, they are also somewhat limited in terms of statistical sophistication and predictive specificity (DeRosier & Thomas, 2003). Other techniques that use summed social preference, liked-most, or liked-least peer nomination scores could be used as proxies for social acceptance and peer rejection. However, such approaches have their own limitations (i.e., they do not distinguish between youth who are highly disliked versus those who are both highly liked and disliked) and can lead to confusion in the peer relations literature. The traditional Coie et al. (1982) procedures were used here because they best fit the conceptual frameworks that were being explored and because they are more familiar and meaningful to teachers, school psychologists, counselors, and other school professionals who are involved in intervening with bullying at the elementary school level.

Conclusion

The current study supports the conceptualization of two social worlds of bullying in early elementary school. These findings help clarify the social dynamics that contribute to bullying and victimization in school and are consistent with findings from research on older children and adolescents (e.g., Farmer et al., 2003; Vaillancourt & Hymel, 2006). Although it has been known that some aggressive children are not rejected (Coie & Dodge, 1998) and are perceived as popular (Lease et al., 2002), the general viewpoint has been that bullies are socially marginalized. Furthermore, while it has been known that bullies have large social networks and are supported by peers (Salmivalli et al., 1997), it has been thought that their support comes from so-

cially marginalized peers. This may be true for bully-victims, but the current findings suggest a more complex peer dynamic in which some bullies may be supported by conventional peers. Additional research is needed to clarify not only how the two social worlds hypothesis is related to bullies, bullies-victims, and victims' long-term adjustment, but also the adjustment of individuals who are socially involved with them. By clarifying such questions as who are the social ringleaders in bullying and how childhood social dynamics contribute to future adult relationships (Pepler, 2006; Vaillancourt et al., 2003), it may be possible to develop school-based bullying interventions that are responsive to the social dynamics that contribute to different types of bullying. In the long run, such work may help prevent chronic patterns of social interactions and relationships that are centered on an imbalance of power and the marginalization of others.

Notes

This research was supported by grants R305L030162 and R305A04005 from the Institute of Education Sciences. The views expressed in this article are ours and do not represent the granting agency.

1. The logistic coefficients reported in the table are converted to odds ratios by taking their antilog (i.e., exponentiating, or taking e^b , where b is the logistic regression coefficient). Thus, for this contrast the odds of boy bullies having rejected versus average sociometric status (relative to the reference group not-identified boys) is $e^{1.580} = 4.855$, which report as the rounded value 4.9.

References

- Arsenio, W. F., & Lemerise, E. A. (2001). Varieties of childhood bullying: Values, emotion processes, and social competence. *Social Development*, *10*, 59–73.
- Asher, S. R., & Coie, J. D. (Eds.). (1990). *Peer rejection in childhood*. New York: Cambridge University Press.
- Bagwell, C. L., Coie, J. D., Terry, R. A., & Lochman, J. E. (2000). Peer clique participation and social status in preadolescence. *Merrill-Palmer Quarterly*, *46*, 280–305.
- Bergman, L. R., Magnusson, D., & El-Khoury, B. M. (2003). *Studying individual development in an interindividual context*. Mahwah, NJ: Earlbaum.
- Bierman, K. L. (2004). *Peer rejection: Developmental processes and intervention strategies. The Guilford series on social and emotional development*. New York: Guilford.
- Bierman, K. L., Smoot, D. L., & Aumiller, K. (1993). Characteristics of aggressive-rejected, aggressive (non-rejected), and rejected (non-aggressive) boys. *Child Development*, *64*, 139–151.
- Burnham, K. P., & Anderson, A. R. (2004). Multimodel inference: Understanding AIC and BIC in model selection. *Sociological Methods and Research*, *33*, 261–304.
- Cairns, R. B., & Cairns, B. D. (1994). *Lifelines and risks: Pathways of youth in our time*. New York: Cambridge University Press.
- Cairns, R. B., Leung, M. C., Buchanan, L., & Cairns, B. D. (1995). Friendships and social networks in childhood and adolescence: Fluidity, reliability, and interrelations. *Child Development*, *66*, 1330–1345.
- Cairns, R. B., Leung, M. C., Gest, S. D., & Cairns, B. D. (1995). A brief method for assessing social development: Structure, reliability, stability, and developmental validity of the interpersonal competence scale. *Behaviour Research and Therapy*, *33*, 725–736.
- Cairns, R. B., Perrin, J. E., & Cairns, B. D. (1985). Social structure and social cognition in early adolescence: Affiliative patterns. *Journal of Early Adolescence*, *5*, 339–355.
- Cillessen, A. H. N., & Mayeux, L. (2004). From censure to reinforcement: Developmental changes in association between aggression and social status. *Child Development*, *75*, 147–163.
- Coie, J. D., Coppotelli, H., & Dodge, K. A. (1982). Dimensions and types of social status: A cross-age perspective. *Developmental Psychology*, *18*, 557–570.
- Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (pp. 571–645). Hoboken, NJ: Wiley.
- Crick, N. R., & Dodge, K. A. (1999). "Superiority" is in the eye of the beholder: A comment on Sutton, Smith, and Swettenham. *Social Development*, *8*, 128–131.

- de Bruyn, E. H., & Cillessen, A. H. N. (2006). Popularity in early adolescence: Prosocial and antisocial subtypes. *Journal of Adolescent Research*, *21*, 607–627.
- DeRosier, M. E., & Thomas, J. M. (2003). Strengthening sociometric prediction: Scientific advances in the assessment of children's peer relations. *Child Development*, *74*, 1379–1392.
- Dishion, T. J., Patterson, G. R., Stoolmiller, M., & Skinner, M. L. (1991). Family, school, and behavioral antecedents to early adolescent involvement with antisocial peers. *Developmental Psychology*, *27*, 172–180.
- Espelage, D. L., & Swearer, S. M. (Eds.). (2004). *Bullying in American schools: A social-ecological perspective on prevention and intervention*. Mahwah, NJ: Erlbaum.
- Estell, D. B., Cairns, R. B., Farmer, T. W., & Cairns, B. D. (2002). Aggression in inner-city early elementary classrooms: Individual and peer-group configurations. *Merrill-Palmer Quarterly*, *48*, 52–76.
- Estell, D. B., Farmer, T. W., & Cairns, B. D. (2007). Bullies and victims in rural African American youth: Behavioral characteristics and social network placement. *Aggressive Behavior*, *33*, 145–159.
- Farmer, T. W. (2000). Social dynamics of aggressive and disruptive behavior in school: Implications for behavior consultation. *Journal of Educational and Psychological Consultation*, *11*, 299–322.
- Farmer, T. W., Estell, D. B., Bishop, J. L., O'Neal, K. K., & Cairns, B. D. (2003). Rejected bullies or popular leaders? The social relations of aggressive subtypes of rural African American early adolescents. *Developmental Psychology*, *39*, 992–1004.
- Farmer, T. W., Irvin, M. J., Sgammato, A. N., Dadisman, K., & Thompson, J. H. (2009). Interpersonal competence configurations in rural Appalachian fifth graders: Academic achievement and associated adjustment factors. *Elementary School Journal*, *109*, 301–321.
- Farmer, T. W., Leung, M. C., Pearl, R., Rodkin, P., Cadwallader, T., & Van Acker, R. (2002). Deviant or diverse peer groups? The peer affiliations of aggressive elementary students. *Journal of Educational Psychology*, *94*, 611–620.
- Farmer, T. W., & Rodkin, P. C. (1996). Antisocial and prosocial correlates of classroom social positions: The social network centrality perspective. *Social Development*, *5*(2), 174–188.
- Farmer, T. W., & Xie, H. L. (2007). Aggression and school social dynamics: The good, the bad, and the ordinary. *Journal of School Psychology*, *45*, 461–478.
- Gest, S. D., Farmer, T. W., Cairns, B. D., & Xie, H. (2003). Identifying children's peer social networks in school classrooms: Links between peer reports and observed interactions. *Social Development*, *12*, 513–529.
- Hanish, L. D., Ryan, P., Martin, C. L., & Fabes, R. A. (2005). The social development of young children's peer victimization. *Social Development*, *14*, 2–19.
- Hawley, P. H. (2002). Social dominance and prosocial and coercive strategies of resource control in preschoolers. *International Journal of Behavioral Development*, *26*, 167–176.
- Kwon, K., & Lease, A. M. (2007). Clique membership and social adjustment in children's same-gender cliques: The contribution of the type of clique to children's self-reported adjustment. *Merrill-Palmer Quarterly*, *53*, 216–242.
- Ladd, G. W., & Kochenderfer-Ladd, B. (2002). Identifying victims of peer aggression from early to middle childhood: Analysis of cross-informant data for concordance, estimation of relational adjustment, prevalence of victimization, and characteristics of identified victims. *Psychological Assessment*, *14*, 74–96.
- Lease, A. M., Musgrove, K. T., & Axelrod, J. L. (2002). Dimensions of social status in preadolescent peer groups: Likability, perceived popularity, and social dominance. *Social Development*, *11*, 508–533.
- Leung, M.-C. (1996). *Social cognitive mapping analyses: Version 4.0*. [Unpublished computer software]. Chapel Hill: University of North Carolina.
- Long, J. S. (1997). *Regression models for categorical and limited dependent variables*. New York: Sage.
- Mouttapa, M., Valente, T., Gallaher, P., Rohrbach, L. A., & Unger, J. B. (2004). Social network predictors of bullying and victimization. *Adolescence*, *39*, 315–335.
- Olweus, D. (2003). A profile of bullying in school. *Educational Leadership*, *60*, 12–17.
- Pellegrini, A. D. (2008). The role of aggressive and affiliative behaviors in resource control: A behavioral ecological perspective. *Developmental Review*, *28*, 461–487.
- Pellegrini, A. D., Roseth, C. J., Milner, S., Bohn, C. M., Van Ryzin, M., Vance, N., et al. (2007). Social dominance in preschool classrooms. *Journal of Comparative Psychology*, *121*, 54–64.
- Pepler, D. J. (2006). Bullying interventions: A binocular perspective. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, *15*, 16–20.

- Pepler, D. J., Craig, W., Yule, A., & Connolly, J. (2004). Girls who bully: A developmental and relational perspective. In M. Putallaz & K. L. Bierman (Eds.), *Aggression, antisocial behavior, and violence among girls: A developmental perspective. Duke series in child development and public policy* (pp. 90–109). New York: Guilford.
- Perren, S., & Alsaker, F. (2006). Social behavior and peer relationships of victims, bully-victims, and bullies in kindergarten. *Journal of Child Psychology and Psychiatry*, *47*, 45–57.
- Putallaz, M., Grimes, C. L., Foster, K. J., Kupersmidt, J. B., Coie, J. D., & Dearing, K. (2007). Overt and relational aggression and victimization: Multiple perspectives within the school setting. *Journal of School Psychology*, *45*, 523–547.
- Raudenbush, S., & Bryk, M. (2001). *Hierarchical linear models*. New York: Sage.
- Rodkin, P. C., Farmer, T. W., Pearl, R., & Van Acker, R. (2006). They're cool: Social status and peer group supports for aggressive boys and girls. *Social Development*, *15*, 175–204.
- Rodkin, P. C., & Hodges, E. V. (2003). Bullies and victims in the peer ecology: Four questions for psychologists and school professionals. *School Psychology Review*, *32*, 384–400.
- Salmivalli, C., Huttunen, A., & Lagerspetz, K. M. J. (1997). Peer networks and bullying in schools. *Scandinavian Journal of Psychology*, *38*, 305–312.
- Schwartz, D. (2000). Subtypes of victims and aggressors in children's peer groups. *Journal of Abnormal Child Psychology*, *28*, 181–192.
- Smith, P. K., & Brain, P. (2000). Bullying in schools: Lessons from two decades of research. *Aggressive Behavior*, *26*, 1–9.
- Smith, P. K., Cowie, H., Olafsson, R. F., & Liefooghe, A. P. D. (2002). Definitions of bullying: A comparison of terms used, and age and gender differences, in a fourteen-country international comparison. *Child Development*, *73*, 1119–1133.
- Solberg, M. E., Olweus, D., & Endresen, I. M. (2007). Bullies and victims in school? Are they the same pupils. *British Journal of Educational Psychology*, *77*, 441–464.
- Sutton, J., Smith, P. K., & Swettenham, J. (2001). "It's easy, it works, and it makes me feel good"—A response to Arsenio and Lemerise. *Social Development*, *10*, 74–78.
- Vaillancourt, T., & Hymel, S. (2006). Aggression and social status: The moderating roles of sex and peer-valued characteristics. *Aggressive Behavior*, *32*, 396–408.
- Vaillancourt, T., Hymel, S., & McDougall, P. (2003). Bullying is power: Implications for school-based intervention strategies. *Journal of Applied School Psychology*, *19*, 157–176.
- Veenstra, R., Lindenburg, S., Oldenhinkel, A. J., De Winter, A. F., Verhulst, F. C., & Ormel, J. (2005). Bullying and victimization in elementary schools: A comparison of bullies, victims, and bully/victims, and uninvolved preadolescents. *Developmental Psychology*, *41*, 672–682.
- Xie, H. L., Farmer, T. W., & Cairns, B. D. (2003). Different forms of aggression among inner-city African-American children: Gender, configurations, and school social networks. *Journal of School Psychology*, *41*, 355–375.