
Gender Differences in Preschool Aggression During Free Play and Structured Interactions: An Observational Study

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Abstract

We observed 48 children from rural preschools (M = 64 months old) in two different social contexts to test hypotheses about the type (relational, physical, verbal, nonverbal), contextual independence, and sociometry of girls' and boys' aggressive tactics. We predicted and generally found that (1) girls displayed more relational aggression than boys while boys displayed more physical and verbal aggression than girls, and that children received more physical and verbal aggression from male peers, and tended to receive more relational aggression from female peers, (2) behavioral observations of aggression corresponded with teacher reports of children's aggressive styles, (3) aggression observed during free play predicted children's aggressive styles in a structured setting at both the group and individual levels, and (4) aggressive tactics were associated with projected sociometric characteristics (dominance and peer acceptance).

Keywords: gender; aggression; dominance; preschool

Recent typologies of aggression distinguish between acts that undermine physical dominance and those that subvert social acceptance (Bjorkqvist, 1994; Cairns, Cairns, Neckerman, Ferguson, & Garipey, 1989; Crick & Grotpeter, 1995; Galen & Underwood, 1997; Hawley, 1999). Some researchers believe that this underlying distinction differentiates the aggressive behavior of boys and girls (see Crick *et al.*, 1999). 'Physical aggression,' or intentional harm caused to others through blatant physical acts (e.g., hitting, kicking) or verbal threat of such acts, is thought to be largely the venue of boys (Crick *et al.*, 1999). 'Relational aggression,' or intentional harm caused to others by damaging their social relationships or feelings of peer acceptance, is believed to characterize the theater of girls (Crick, 1996; Crick, Casas, & Mosher, 1997; Crick & Grotpeter, 1995; French, Jansen, & Pidada, 2002). Examples of this type of aggression are excluding individuals from playgroups, ignoring them, or maliciously gossiping about them. Crick and her colleagues derived evidence that physical and relational aggression are gender-linked from teacher and peer reports of aggression among preschoolers (e.g., Crick *et al.*, 1997), school-aged children (e.g.,

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Crick, 1996; Crick & Grotpeter, 1995; Crick, Grotpeter, & Bigbee, 2002), adolescents (e.g., Linder, Crick, & Collins, 2002), and young adults (e.g., Werner & Crick, 1999).

There is surprisingly little observational data, however, to support either conceptual distinctions between relational and physical aggression or the reported links of these forms of aggression to gender. Most early researchers who studied aggression collected observational data on what was essentially physical and verbal aggression in children, often ignoring subtler, verbal and nonverbal relational aggressive tactics (e.g., Barrett, 1979; Fagot & Hagan, 1985; Hyde, 1984; for review see Coie & Dodge, 1998). A decade or so later, researchers began identifying children's use of social ostracism and other, relatively subtle manipulative tactics intended to damage another's self-esteem or social standing. Those overlapping types were variously known as 'social aggression' (Cairns *et al.*, 1989; Galen & Underwood, 1997), 'indirect aggression' (Bjorkqvist, 1994) or 'relational aggression' (Crick & Grotpeter, 1995). Contemporary researchers have made careful conceptual distinctions between these types of aggression and more blatant forms, but unfortunately limited data collection to teacher and peer reports (e.g., Bjorkqvist, Lagerspetz, & Kauklainen, 1992; Crick & Grotpeter, 1995; French *et al.*, 2002; Henington, Hughes, Cavell, & Thompson, 1997; Willoughby, Kupersmidt, & Bryant, 2001; cf. Pepler, Craig, & Roberts, 1998).

The different methodological approaches have constrained our understanding of how children's aggressive strategies develop. For example, 'indirect aggression,' such as spreading rumors, gossiping, and advocating shunning by peers, comprises behavior in which the target is not directly confronted (Bjorkqvist *et al.*, 1992). According to teacher and peer reports, these relatively subtle tactics do not emerge until middle childhood (Bjorkqvist, 1994; Bjorkqvist *et al.*, 1992). But at least one observational study found that, on the playground, the aggressive behavior of children as young as four years of age is subtle (relational) as well as direct (physical) in nature (McNeilly-Choque, Hart, Robinson, Nelson, & Olsen, 1996). Thus, the present study used both observational and teacher report methods to investigate gender-linked patterns of aggressive behavior (i.e., physical, relational, etc.) in a sample of girls and boys during early childhood.

A gender-inclusive analysis of aggression during the preschool period is important for understanding the harmful social experiences of both boys and girls (Zahn-Waxler, 1993). Yet, few studies have investigated gender differences in relational and physical aggression and their associated social motives in very young children (see Crick *et al.*, 1999). Moreover, the type of aggression experienced by very young children when targeted by peers is believed to be very different for girls and boys (Crick *et al.*, 1997; Fagot & Hagan, 1985; Farver, 1996; Maccoby, 1988). To date, no observational studies have investigated gender differences in relational and physical victimization (e.g., receiving from one's peers behaviors defined as relational or physical aggression; for review see Crick *et al.*, 2001). Thus we examined not only the kind of aggression young children perpetrated on each other but also the kind of aggressive acts their peers directed toward them. We hoped our study would have implications for practitioners who design and implement prevention and intervention strategies with young children (Bryant, Vizzard, Willoughby, & Kupersmidt, 1999).

We had four goals in mind. First, we sought behavioral verification of gender differences in subtypes of aggression/victimization (i.e., physical, verbal, nonverbal, and

relational) in young children by using observational approaches. Second, we assessed the validity of the paper-and-pencil (report) measurement of these constructs. Nearly all of the research to date has relied on teacher and peer reports of aggressive behavior rather than on recordings of actual behavior. Using a multi-method approach, we collected both report and behavioral data and compared them. The third goal of the study was to investigate whether children's aggressive behavior reflected consistent styles of behavior identifiable across social settings (e.g., free play versus a structured task), a possibility not yet tested. Fourth, the social motives and strategic outcomes of physical aggression (e.g., the relative enhancement of one's social dominance) and of relational aggression (e.g., the relative enhancement of one's peer acceptance) have been presumed (Crick *et al.*, 1999; Hawley, 1999) but rarely measured, so we tracked the sociometry of individual children who deployed different aggressive strategies to test the predicted match. Arguments and evidence underlying these four investigative goals are presented next.

Gender Differences in Aggression Among Preschoolers

There is a confluence of theory and empirical evidence suggesting that by preschool, boys and girls have developed distinct patterns of social engagement, including those characterized by conflict (Block, 1983; Crick *et al.*, 1997; Eagley & Steffen, 1986; Maccoby, 1988; Maccoby & Jacklin, 1974). Superficially, boys' responses to conflict may appear to be more powerful than girls'. But early on, Feshbach (1970) speculated that the essential difference in girls' and boys' aggression was not the 'strength' of the hostile act but rather its 'mode' (e.g., physical or nonphysical aggression; Feshbach, 1970, p. 193). Research based on peer nomination and teacher reports confirms Feshbach's (1970) early insights: gender differences in relational and physical aggression, and in overt and covert antisocial behavior, have been reported in children as young as three years of age (Crick *et al.*, 1997; Crick, Casas, & Ku, 1999; Hart, Nelson, Robinson, Olsen, & McNeilly-Choque, 1998; Willoughby *et al.*, 2001). Consistent with these reports, we anticipated that preschool boys and girls would both exhibit and receive physical, verbal, and relational aggression at different rates.

We recorded the frequency with which different types of aggression (i.e., physical, verbal, and relational) was displayed and received by same and other-sex peers during free play sessions. These observations were unique in that the gender of both the perpetrator *and* the victim of aggressive acts were recorded (cf. McNeilly-Choque *et al.*, 1996). Consistent with past literature (see Crick *et al.*, 2001; Olweus, 1993; Schwartz, 2000), we considered peer victimization as the frequent receipt of aggressive behavior (e.g., physical, relational, verbal, etc.).

Specific predictions were based predominantly on Crick's propositions regarding gender differences in aggression (Crick, 1996; Crick & Grotpeter, 1995; Crick *et al.*, 1996, 1997, 1999). Boys were expected to deliver and receive more physical aggression, especially when playmates were male. Boys use verbal denigration much as they do physical means to increase their social standing relative to classmates (Coie & Dodge, 1998; Maccoby, 1998; Roy & Benenson, 2002). Therefore, boys were also expected to deliver and receive more verbal aggression (e.g., insults, ridicule, teasing) than were girls. Girls were predicted to display and receive more relational aggression compared to boys, especially during interactions with females. Because older girls apparently use subtle nonverbal facial and body gestures to ostracize others (Galen &

Underwood, 1997), we predicted that preschool girls would display and receive more of this kind of nonverbal aggression compared to boys, especially during interactions with females.

A Multi-method Approach

Investigations of gender differences in children's physical, verbal, and relational aggression/victimization, during all developmental periods, have relied almost exclusively on teacher report and peer nomination data, on children's reactions to hypothetical situations, or on semi-structured interviews (e.g., Crick, 1996; Crick & Bigbee, 1998; Crick & Grotpeter, 1995, 1996; Crick *et al.*, 1996, 1997, 1999, 2001; Crick & Werner, 1998; French, Jansen, & Pidada, 2002; Henington *et al.*, 1998; Rys & Bear, 1997; Tomada & Schneider, 1997; Willoughby *et al.*, 2001; cf. McNeilly-Choque *et al.*, 1996). The typical protocol invites teachers and peers to identify children who hit, kick, insult, threaten, ignore, or who tell secrets or spread gossip about others, and to identify individuals who are frequent victims of such behavior (see Crick *et al.*, 2001). In general, during early childhood both teachers and peers report that girls deliver and receive more relational aggression than boys while boys propagate and receive more physical aggression than girls (Crick *et al.*, 1997, 1999; McNeilly-Choque *et al.*, 1996; Russell, Hart, Robinson, & Olsen, 2003; cf. Hart *et al.*, 1998). But are subjective, retrospective reports like these a valid measure of aggressive style? Subjective accounts of aggressive behaviors may partly reflect gender stereotypes (Condry & Ross, 1985; Susser & Keating, 1990). Teachers and peers may recall best the behaviors expected of girls and boys, not those children that actually perform. Even though assessments based on behavioral observations could offer important confirmation of gender-linked aggressive styles, surprisingly few have been attempted.

One group of researchers provided preliminary, behavioral verification of reported gender differences in relational and physical aggression in young children. McNeilly-Choque *et al.* (1996) collected systematic outdoor playground observations as well as teacher and peer reports on a large ($n = 241$) sample of four and five-year-old children. Each child was observed during free play utilizing a random scan sampling method that yielded 100 five-second scans during a five to seven-week period, resulting in a total of eight minutes of observation per child. This study found that males were more physically and verbally aggressive than females and that females were more relationally aggressive than males. However, the correspondence between behavioral counts and teacher and peer attributions of classmates was disappointing. Behavioral measurements of relational aggression only weakly correlated with teacher and peer reports ($r_s = .10$ and $.20$, $p_s < .05$ and $.01$, respectively). Physical aggression recorded on the playground was predicted modestly by teacher and cohort accounts ($r_s = .30$, $p < .01$). Thus the data were intriguing but limited perhaps because reliance on outdoor observations made subtle types of aggressive interactions difficult to detect or decipher (Pepler *et al.*, 1998).

To further probe the validity of aggression subtypes and their measurement, we collected behavioral observations of preschool aggression (delivered and received) as well as teacher perceptions of children's aggressive styles using the Preschool Social Behavior Scale for Teachers Form (PSBS-TF; Crick *et al.*, 1997). This strategy permitted us to correlate relatively objective (behavioral) with subjective (teacher) accounts of preschoolers' aggressive behavior. In contrast to McNeilly-Choque *et al.* (1996), behavioral sampling was done mostly indoors and for relatively long segments

of time (five, ten-minute samplings per child). We expected that behavioral observations and teacher reports would demonstrate concordance.

Situation or Style?

We extended our behavioral observations to include a second, novel setting in order to examine whether children's aggressive behavior reflected consistent styles identifiable across different social situations. This was achieved by collecting and comparing behavioral observations not only during free play but also during a structured interaction in which children were randomly assigned to work in pairs. The structured interaction was designed to provoke low levels of conflict and reveal the behavioral tactics children use to cope with agonistic situations. In both the free play and structured contexts, we recorded the frequency with which different types of aggression were deployed by each child as they interacted with same and other-sex peers. In addition to observing physical, relational, and verbal aggression, we also recorded non-verbal aggressive gestures (e.g., stares, chin thrusts, fist shaking; Ellyson & Dovidio, 1985; Keating & Heltman, 1994) because of the (theorized) role this type of aggression plays during the hostile interactions of older, school-aged children, especially girls (Galen & Underwood, 1997).

At the group level, we anticipated consistency in the aggressive behavior of preschoolers across the unstructured (free play) and structured (coloring task) contexts. Overall, girls were expected to reveal more relational and nonverbal aggression than were boys in both contexts. Boys were expected to reveal more physical and verbal aggression than were girls across contexts.

We also anticipated that aggressive behavior would be driven by individual styles and not shift with different contexts; that is, the aggressive tactic relied upon by a particular child in one situation would be relied upon by that child in another situation. In general, the antisocial and externalizing behavior of young children is remarkably stable; the early emergence of social-cognitive attributional styles and socialization patterns presumably supports it (Coie & Dodge, 1998; Crick & Dodge, 1994; Denham, Workman, Cole, Weissbrod, Kendziora, & Zahn-Waxler, 2000). Therefore, at the individual level, correlations between the rates of each child's physical, verbal, and relational aggression in one context were expected to be consistent with their rates in the other context. Alternatively, tests of the stability of aggressive behaviors in multiple contexts could reveal the degree to which children are able to adapt their behavior to different social settings.

Sociometric Standing and Aggressive Styles

Crick (1996) theorized that different aggressive tactics were linked to different social motives, and that the importance of these motives differed for girls and for boys. Because boys emphasize dominance whereas girls emphasize intimacy, the genders presumably diverge in the development of aggressive tactics (Block, 1983; Crick, 1996). Specifically, physical/verbal aggression best serves boys' motives for physical dominance while relational aggression is best used to manipulate social relationships and serve girls' motives for social acceptance. Surprisingly, researchers have largely neglected to examine anticipated links between aggressive tactics, social motives, and sociometric payoffs in preschool children (Pellegrini, 1998). Therefore, we collected behavioral observations, teacher ratings, and peer nominations documenting children's

aggression, dominance, and peer acceptance in order to uncover associations among them. Based on Crick and Grotpeter (1995), correlational analyses were expected to show that teacher-rated dominance was associated with relatively high rates of physical and verbal aggression, and low rates of physical and verbal victimization, especially for boys. Teacher ratings of peer acceptance were expected to be associated with relatively low rates of victimization via relational aggression, especially for girls (Crick, 1996).

Summary

In summary, our research aimed to expand the study of aggression with four main goals in mind: (1) to examine whether young, preschool children exhibited gender differences for various subtypes of aggression and victimization (i.e., physical, relational, verbal, and nonverbal), (2) to assess aggressive behavior through both relatively objective, behavioral observation as well as subjective teacher reports, (3) to measure aggressive styles across different social contexts, and (4) to explore sociometric indices associated with aggressive tactics.

Method

Participants

Participants were 48 children (24 males and 24 females) from preschools in two neighboring, rural communities in upstate New York. Children from three different preschool-aged classrooms were invited to participate. Parental consent rates from each classroom was 95% or better. The children's ages ranged from 51 to 77 months ($M = 64$ months, $SD = 6.77$). Data for five children were incomplete either because of irregular attendance or because their families moved either into or out of the area during the course of the study. The remaining sample of children comprised 90% European American, 5% Latino, and 5% were other ethnicities or unknown. The socioeconomic backgrounds of the children's families, based on yearly income data obtained from the preschools, varied from working class to professional (i.e., yearly income for participating families ranged from $< \$10,000$ to $> \$75,000$) but the sample was predominantly middle class.

Procedure

Data collection comprised four major components: (1) Observations of aggression and victimization during free play; (2) Teacher reports of aggression (PSBS-TF); (3) Observations of aggression during a videotaped structured interaction (coloring task); and (4) Teacher and peer reports of sociometric status.

Observations of Aggression and Victimization During Free Play. Participants were observed during regularly scheduled free play periods in large indoor playrooms, in classrooms, and outdoors on playgrounds. Observations were collected during the middle of the school year, so that the children were well acquainted (Laursen & Hartup, 1989). Four female and one male undergraduate students were trained as observers; all but one was unaware of the hypotheses.¹

Pilot work revealed that recording observations on paper as they occurred was less disruptive in preschool settings than videotaping interactions: unlike the response to

camcorders, children quickly grew bored with the clipboards observers carried. Conversations among children were easier to distinguish for an observer posted a few feet away from the action than for a coder relying on videotaped interactions recorded at some distance. Moreover, school directors, parents, and teachers were more comfortable with written than videotaped data records. Thus, we developed structured coding forms and relied on written records of live observations for data collection.

Before any data were collected, observers were introduced to the children and teachers, spending a few days in the classroom to let others adjust to their presence and to memorize the names of study participants. Observers did not generally interact with the children or with teachers. They became a routine presence in the classroom and were largely ignored, which is a fundamental goal of observational procedures (Pellegrini, 1998, 2001).

We utilized a continuous event recording focal child observational approach (Fagot & Hagan, 1985). Specifically during each observational session, one child (the focal child) was randomly selected and observed for ten minutes by an observer (or observers) stationed nearby (Arsenio & Lover, 1997; Fagot & Hagan, 1985; Laursen & Hartup, 1989; Pellegrini, 2001). Observers remained within earshot of the focal child and did their best to remain unobtrusive. The close proximity of observers allowed them to differentiate rough and tumble play from aggressive interactions (Pellegrini, 1989). They avoided interactions with children by appearing to study information on the clipboards they carried.

Observations were transformed into continuous measurements of different types of aggression. We did not supply observers with an exhaustive check sheet of mutually exclusive categories of behavior. Rather, we gave them an observational form that contained a list with different exemplars for each aggression category (based on Crick *et al.*, 1997) and had them record in detail representative events under appropriate headings. We asked the observers to record each event with enough detail such that their observations could be verified for accuracy (i.e., placed in the appropriate behavioral category) and matched with a second observer for reliability purposes. In addition, each independent behavior was listed on a new line under the behavior that preceded it within each respective category. Aggression categories were: *physical aggression* (e.g., hitting, pushing, pulling, punching, or forcibly taking objects), *verbal aggression* (antagonistic teasing, mean names, verbal threats of harm,² or insult not expressed at friendship status; e.g., 'Stop that!' or 'Shut up!' or 'Chicken!'), and *relational aggression* (excluding from playgroup, spreading rumors, withdrawing friendship, maliciously telling lies, ignoring a peer; e.g., 'You can't play with us but she can,' 'You can't come to my party,' or deliberately turning away and ignoring a peer's request to join in play).³ In addition, observers recorded the *total number of male and female playmates for each focal child*, which consisted of a count of those children each focal child directly interacted with during the session regardless of the aggressive nature of the episode. To insure objectivity, observers were also trained to observe and record prosocial behavior (e.g., sharing, helping, etc.). These observations served as positively toned filler items and helped disguise the primary focus of our behavioral records from observers (see Crick *et al.*, 1999).

Scoring of Observations During Free Play. Behavioral counts were summed across observation periods to derive physical, verbal, and relational aggressiveness scores (displayed and received) for each child. Observation of an event within a category contributed a point to the focal child's 'score' in that category. Counts were made each

time a behavior occurred. A behavioral unit was defined by temporal breaks in any ongoing action. Two pinches (or two insults or two rejections or two different smiles) added two points; three, three points, and so on even when the behaviors were part of the same encounter. If a child maintained a continuous pinch for an extended period of time, only one count of (physical) aggression was made. Similarly, the continuous statement, 'We don't like you, so you can't play with us' would be coded as one act of relational aggression rather than two, given the immediate temporal association and interdependency between the two phrases. If separated in time, two acts were counted.

All counts were based on subjective assessments of intent. A ball that sailed out of control and hit another child was not an event that scored as an aggressive act. If a child appeared to intentionally hurl an object at a peer, the act was counted as aggressive.

Children were scored both as victimizer and as victim by counting both the aggressive acts they directed toward peers as well as those they received from peers during ten-minute observation periods. Over a two to three-month period, each child was observed (based on a predetermined random order) five times for a total of 50 minutes (Arsenio & Lover, 1997).

Actions were considered aggressive regardless of who initiated conflict and who retaliated. For example, if a focal child stuck out his foot to trip a male peer ('J.P.'). the event was counted as an example of aggression displayed by the focal child to a male peer. If the focal child was hit *by* J.P., the episode was recorded for the focal child as an instance of 'received physical aggression from male peer.' If the focal child subsequently retaliated by shoving J.P. aside, a point was added to the focal child's rate of 'aggression displayed toward a male (J.P.)' If J.P. accidentally spilled the focal child's juice and the focal child responded by calling the child a mean name, the insult was added to the focal child's score for 'verbal aggression toward a male (J.P.)' Thus aggressive acts were sometimes proactive and sometimes a reaction to (perceived) threat from another child, but these motives were not delineated for subsequent analyses.

Reliability of Observations During Free Play. For 30% of observation periods, two observers simultaneously scored the same child in order to assess inter-observer agreement (agreements/agreements + disagreements) (Bakeman & Gottman, 1987). All observers were checked for reliability and reliability assessments occurred throughout the data collection process. Agreements were counted when, during a ten-minute observation period, each observer independently recorded the same number of actions under the same category (e.g., if each observer recorded a score of seven acts of verbal aggression, seven agreements were tallied). Disagreements occurred when observers' counts differed (e.g., two versus three counts of relational aggression were tallied as two agreements, one disagreement). In order to verify that all behaviors in fact matched, to eliminate any false agreements, we also utilized a more stringent reliability estimate whereby we first matched the behaviors recorded by both observers. A matched agreement was determined when the same behavior was recorded in approximately the same position on the observation form for both observers. A disagreement occurred when the behaviors did not match or when the overall observational counts did not correspond. To assess inter-observer reliability, intra-class correlation coefficients (ICC) were computed between the independent raters (Bartko, 1976; McGraw & Wong, 1996) and are presented in parentheses after the proportion of agreement

analyses. The median proportions of inter-observer agreement across three sets of paired observers for actions delivered and received by focal children when interacting with male and female peers (for a total of twelve calculations per aggression category) were, respectively: physical aggression, .96 (ICC = .75); verbal aggression, .83 (ICC = .85); and relational aggression, .88 (ICC = .82). The total number of boys with whom each focal child interacted showed high agreement (proportion observer agreements = .98; ICC = .84) as did comparable counts for the total number of girls each focal child interacted with across all sessions (proportion observer agreement = 1.00; ICC = .91). Thus inter-observer agreement ranged from acceptable to very good.

Teacher Reports of Aggression (PSBS-TF). Behavioral observations of aggressive styles were correlated with teacher perceptions of each child's aggressiveness. Head and assistant teachers were given the Preschool Social Behavior Scale/Teacher Form (PSBS-TF), a reliable and valid measure designed by Crick *et al.* (1997) to assess individual differences in overt and relational aggressive habits. For each child, the two teachers independently completed 19 five-point scales (ranging from never or almost never to always or almost always) that assessed overt (e.g., hits, kicks, or verbally threatens others) and relational aggressiveness (e.g., 'tells others not to play with or to be a peer's friend,' 'tries to get others to dislike a peer,' Crick *et al.*, 1997). Pearson correlations calculated between the ratings produced by primary and assistant teachers for the physical, verbal, and relational aggression subscales of the PSBS-TF were $r(46) = .49, p < .001$, $r(46) = .62, p < .001$, and $r(46) = .55, p < .001$, respectively. Scores for physical, verbal, and relational aggressiveness were determined by averaging the ratings across teachers.

Observations of Aggression During Structured Interaction (Coloring Task). A structured interaction comprising a coloring task provided a novel social situation in which to investigate the stability of girls' and boys' aggressive tactics with same and other-sex peers. The coloring task was similar to those used by previous researchers studying preschoolers (Camras, 1984; Charlesworth & Dzur, 1987) and school-aged children (Berndt, Hawkins, & Hoyle, 1986). In our study, the task was designed to provoke mild conflict between pairs of children by limiting the availability of an important resource. Pairs of children were given a series of three pictures to color (Winnie the Pooh, Piglet, and an Easter Egg). The potential for conflict was generated by supplying only two coloring tools: one attractive, colorful crayon (e.g., only one orange crayon was provided for the Winnie the Pooh picture) and one functionally useless, white one. Pilot tests on an independent sample of children verified that the colorful crayon was preferred.⁴ Typically, conflict was generated when one child maintained control over the colorful crayon. Conflict was sometimes resolved with physical dominance (e.g., taking the crayon). At other times, prosocial tactics were used (e.g., breaking the crayon and giving one piece to a partner). The conflict resolution strategies of the children were not explicitly coded and not entered into the analyses we presently report.

Participants were randomly assigned to color with either a same or other-sex classmate.⁵ The children were given three minutes to complete each picture. The passage of time was marked by three hourglasses of one minute each, which were set on the table in view of the children and turned in sequence by the experimenter during the three-minute trial. At the start of each coloring trial, identical copies of one picture were put on the table in front of each child. The attractive and unattractive crayons

were placed in the center of the table. The experimenter told participants, 'I have three pictures for you to color. I would like you to color your best until I tell you to stop. You will be able to tell how much time you have left by looking at the sand in these three hourglasses. When the sand is all gone from the top and sits in the bottom of each of the three hourglasses, like this [demonstrates it], that means time is up. You cannot ask me any questions once we have started, but you can talk to each other. Do you have any questions? If not, I am going to turn on my video camera and then we will get started. Here is your first picture and crayons, so go ahead.' The second and third pictures were administered in turn. Stickers were given to each child at the conclusion of all three coloring trials. Two to three weeks later, most of the children performed the coloring task a second time with another partner of a gender different than the first.

Coding for Coloring Task. Coloring sessions were videotaped and later coded by two observers who did not participate in free play observations, were unfamiliar with the children, and unaware of hypotheses. The behaviors displayed by each interactant were recorded and counted under behavioral categories identical to those used for observations of free play (i.e., physical, verbal, relational). Observers also counted from videotapes nonverbal aggressive behaviors (hostile threat gestures and dominance postures; e.g., stare, frown, stick out tongue, chin thrust, arms akimbo, intrusive pointing; Keating & Heltman, 1994), which proved too difficult to reliably assess during naturalistic free play.

Reliability for Coloring Task. Interobserver agreement (agreements/agreements + disagreements) was assessed for 28 children or 58% of the sample. Agreements and Intra-class correlations for behavioral scores were good or acceptable for these videotaped recordings: physical aggression, .90 (ICC = .95); verbal aggression, .84 (ICC = .89); relational aggression, .86 (ICC = .93); nonverbal aggression, .74 (ICC = .80).

Peer and Teacher Ratings of Sociometric Status. Teacher ratings of each child's social dominance and peer acceptance were collected. Teachers independently rated how 'dominant or influential' each child was with classmates on a one-item scale ranging from one (never or almost never) to five (always or almost always). For peer acceptance, teachers independently rated the degree to which each child was a preferred playmate by all the peers in his/her classroom on a one (never or almost never) to five (always or almost always) point scale. Reliability coefficients calculated between the ratings produced by primary and assistant teachers for dominance and acceptance were $r(46) = .43, p < .001$, and $r(46) = .66, p < .001$, respectively. Peer acceptance was also assessed by showing each child their class picture and asking them to nominate the three children with whom they most preferred to play (Bonn & Kruger, 1996; Crick *et al.*, 1997, 1999). Points were given each time a child was nominated. Consistent with Wu, Hart, Draper, and Olsen (2001), teacher assessments of peer acceptance showed moderate agreement with peer playmate preferences, $r(46) = .46, p < .05$. Teacher data were used in all subsequent peer acceptance analyses.

Results

To determine whether preschool boys and girls display and receive differential rates of each type of aggression (Goal 1), separate analyses were performed on chil-

dren's behavior scores in the unstructured (free play) and structured (coloring task) settings.

Observations During Free Play

Aggression rates were analyzed in two ways. Initially, raw frequencies for each type of aggression (physical, verbal, relational) comprised the dependent variable. This measure reflected the amount of aggressive activity a child engaged in, regardless of how many peers of each gender the child encountered. Indexing aggression this way matched the direct, perceptual information teachers and classmates were privy to by simply sampling how frequently each child was involved in aggressive encounters with girls and with boys.

But perhaps children's aggression was determined partly by the company they kept. Thus, the second way in which aggression was characterized statistically 'corrected' for the number of boys and girls each focal child encountered. Unlike human perceivers, these tests controlled for the biased number of same-sex peers children contacted (Maccoby, 1988).⁶ This was accomplished by covarying from aggression scores the total number of same-sex or other-sex playmates counted across the five observation periods for each focal child. By using these two different analytic strategies, the frequency of aggression was compared both over time and per contact. The findings that emerged from these analyses were similar and so only the results of the covariance analysis are reported below.

Aggression Displayed by Focal Children. The first set of analyses tested the extent to which boys and girls directed different types of aggression toward male and female peers. A 2 (focal child gender) \times 2 (peer gender) \times 3 (aggression type: physical, verbal, relational) Analysis of Covariance (ANCOVA) with repeated measures on the last two factors was computed. Covariates were the number of male and female playmates each child encountered. Thus the means for aggressive behaviors directed toward male and female peers were adjusted for the number of male and female classmates focal children were observed with. The adjusted means on which these analyses are based appear in Table 1.

Results of the ANCOVA revealed a main effect for focal child gender indicating that boys ($M = 6.93$) were generally more aggressive than girls ($M = 5.36$), $F(1,38) = 7.53$, $p < .01$. There was also a main effect for type of aggression, $F(2,38) = 3.86$, $p < .05$. Verbal aggression was more common than either relational, $F(1,40) = 17.2$, $p < .001$, or physical aggression $F(1,40) = 36.68$, $p < .001$. Overall rates for the latter two types were similar, $F(1,40) < 1.0$, ns (see Table 1 for means).

The ANCOVA yielded two significant, two-way interactions. Focal child gender interacted with aggression type, $F(2,38) = 11.48$, $p < .001$. Consistent with predictions, boys ($M = 6.46$) were more physically aggressive than girls ($M = 2.18$), $F(1,38) = 12.28$, $p < .001$, boys ($M = 10.81$), were more verbally aggressive than girls ($M = 6.97$), $F(1,38) = 6.47$, $p < .01$, and girls ($M = 6.92$) were more relationally aggressive than boys ($M = 3.53$), $F(1,38) = 6.87$, $p < .01$, regardless of peer gender. Aggression type also interacted with peer gender, $F(2,38) = 31.66$, $p < .001$: Regardless of focal child gender, focal children directed more physical aggression, means = 4.56 and 1.54, $F(1,39) = 20.25$, $p < .001$, and more verbal aggression, means = 7.65 and 4.93, $F(1,39) = 14.00$, $p < .001$, toward male than female peers. Focal children deployed more relational aggression with female ($M = 3.36$) than with male ($M = 1.78$) peers, $F(1,39) =$

Table 1. Mean Frequencies of Aggressive Behavior Displayed by Focal Children Toward Male and Female Peers During Free Play

Aggression	Peer Gender	Focal Boys			Focal Girls		
		Mean	SD	Range	Mean	SD	Range
<i>Physical</i>							
	Male	4.11	4.71	0–17	1.98	1.12	0–04
	Female	1.10	1.20	0–04	1.44	1.22	0–04
<i>Verbal</i>							
	Male	6.03	5.60	0–25	4.16	3.59	0–14
	Female	3.57	1.66	0–06	3.98	3.01	0–11
<i>Relational</i>							
	Male	1.10	2.75	0–10	2.48	2.60	0–08
	Female	2.38	1.80	0–06	4.54	2.96	0–11

Note: Means are adjusted means (see text, p. 265). Based on completed data for 19 focal boys and 21 focal girls.

6.86, $p < .01$. Thus, consistent with predictions, the two-way interactions indicated that focal boys were most overtly aggressive, focal girls were most relationally aggressive, and that focal children directed more overt aggression toward male than female peers and more relational aggression toward female than male peers.

The two-way interactions were qualified by a predicted, higher-order interaction between focal child gender, peer gender, and aggression type, $F(2,38) = 3.81$, $p < .05$. We tested predictions that the type of aggression focal children displayed depended upon the gender *composition* of interactants by examining gender-linked patterns for each type of aggression separately.

For physical aggression, focal child gender and peer gender interacted, $F(1,38) = 4.42$, $p < .05$, revealing that, as predicted, boys displayed more of this type of overt aggression when interacting with male ($M = 4.11$) than with female ($M = 1.10$) peers, $F(1,18) = 7.97$, $p < .01$. There was no difference in the amount of physical aggression focal girls directed toward male ($M = 1.98$) and female ($M = 1.44$) peers, $F_s(1,19) < 1.0$, ns (see Table 1). Boys ($M = 4.11$) directed more physical aggression toward male peers than did girls ($M = 1.98$), $F(1,38) = 5.03$, $p < .05$. Physical aggression toward female targets was similar for focal boys ($M = 1.10$) and girls ($M = 1.44$), $F(1,42) < 1.0$, ns.

Neither the simple effects ANCOVAs for verbal aggression, $F(1,38) = 1.88$, ns, nor for relational aggression, $F(1,38) < 1.0$, ns, produced the predicted interaction between focal child gender and peer gender. Thus only the results for physical aggression suggested that gender composition influenced aggressive tactics. Apparently, the tendency of boys to engage in verbal aggression and girls in relational aggression was unrelated to the gender of peers with whom they interacted.

Aggression Received by Focal Children (Victimization). To investigate differences in the types of aggression focal children *received* from their male and female peers, a 2

(focal child gender) \times 2 (peer gender) \times 3 (aggression received: physical, verbal, relational) ANOVA with repeated measures on the last two factors was computed. As before, this analysis was performed both with and without using the number of same and other-sex playmates as a covariate. The results of these analyses were nearly identical and only the ANCOVA results are described below.

The ANCOVA did not reveal any significant main effects. The only significant interaction to emerge indicated that the type of aggression received by focal children depended upon peer gender, $F(2,38) = 8.93, p < .001$. Consistent with predictions, focal children received more physical aggression from male than from female peers, means = 1.20 and .45, $F(1,39) = 10.38, p < .01$, and received more verbal aggression from male than from female peers, means = 1.43 and .85, $F(1,39) = 4.45, p < .05$. Focal children tended to receive more relational aggression from female ($M = 1.45$) than from male ($M = .57$) peers, $F(1,40) = 3.36, p < .07$ but this predicted result only approached conventional levels of statistical significance. Unexpectedly, focal child gender did not moderate these patterns; the three-way interaction between focal child gender, peer gender, and aggression type was not significant, $F(2,38) = 1.36, ns$.

Structured Context (Coloring Task)

The gender linkage of aggressive tactics was also tested in the structured setting. The framework for the analyses of aggressive behaviors displayed during the coloring task was similar to that for free play. This time, however, peer gender was a between-subjects factor. In addition, nonverbal aggressive behaviors were included as observations. Given the fact that the behavior of each pair member was measured, only the aggressive behaviors each child dispensed (rather than received) were analyzed. Because the behavior of dyad members is interdependent, results for the coloring task were also computed using dyad as the unit of analysis (Gottman & Ringland, 1981; Markell & Asher, 1984). The pattern of mean differences for male and female dyads was consistent with predictions but not statistically reliable due to diminished power. Given this methodological limitation, the results reported below, which were based on the individual as unit of analysis, should be interpreted with caution. Analyses were based on data from first-time pairings only as the data for second-time pairings were incomplete. Table 2 reports the means, ranges, and standard deviations for these tests.

A 2 (focal child gender) \times 2 (peer gender) \times 4 (aggression type: physical, verbal, nonverbal, relational) ANOVA with repeated measures on the last factor yielded a main effect for type of aggression, $F(3,42) = 19.19, p < .001$. Rates of verbal ($M = 8.81$) and nonverbal aggression ($M = 7.49$) did not differ, $F(1,45) < 1.0, ns$, but each of these forms was more frequent than either physical ($M = 2.13$), $F_s(1,45) = 31.92$ and 21.86 , respectively, $ps < .001$, or relational aggression ($M = 1.69$), $F_s(1,45) = 42.88$ and 27.14 , respectively, $ps < .001$. Rates for physical and relational aggression did not differ, $F(1,45) < 1.0, ns$. The ANOVA also yielded an anticipated, three-way interaction between aggression type, focal child gender, and peer gender, $F(3,42) = 5.55, p < .001$. The higher-order interaction was pursued by examining effects for each type of aggression separately.

For verbal aggression during the coloring task, the 2 (focal child gender) \times 2 (peer gender) ANOVA produced a significant two-way interaction, $F(1,42) = 6.08, p < .05$. A breakdown of the interaction revealed a significant difference between focal boys and girls for verbal aggression toward male peers, $F(1,22) = 8.77, p < .01$, indicating

Table 2. Mean Frequencies of Aggressive Behaviors Displayed by Focal Children Toward Male and Female Peers During the Coloring Task

Aggression	Peer Gender	Focal Boys			Focal Girls		
		Mean	SD	Range	Mean	SD	Range
<i>Physical</i>							
	Male	3.00	5.12	0–19	0.70	1.64	0–05
	Female	1.80	2.39	0–07	3.08	3.34	0–09
<i>Verbal</i>							
	Male	12.36	8.76	0–35	5.50	4.90	0–28
	Female	11.08	8.64	2–19	4.81	3.01	0–25
<i>Relational</i>							
	Male	2.07	2.92	0–11	0.40	0.52	0–03
	Female	1.10	1.29	0–05	2.00	2.32	0–09
<i>Nonverbal</i>							
	Male	5.07	6.07	0–22	10.00	7.38	0–21
	Female	8.70	5.21	2–22	6.16	8.49	0–30

Note: Based on data for 24 males and 22 females.

that focal boys were more verbally aggressive with male peers than were focal girls. Boys were reliably more verbally aggressive with male than with female peers, $F(1,22) = 6.84, p < .05$. Focal girls and boys were similar in the amount of verbal aggression they used when interacting with female classmates, $F(1,20) = 3.99$, ns. Girls were significantly more verbally aggressive toward female peers than toward male peers, $F(1,20) = 5.44, p < .05$ (see Table 2). The ANOVA for relational aggression during the coloring task produced an interaction between focal child gender and peer gender, $F(1,42) = 8.36, p < .01$. Analysis of the interaction revealed that, as predicted, focal girls were more relationally aggressive toward female peers than were focal boys, $F(1,20) = 5.51, p < .05$. In addition, focal girls displayed more relational aggression toward females than toward males, $F(1,20) = 11.59, p < .01$. Focal boys were not reliably more relationally aggressive toward male peers than were focal girls, $F(1,22) = 3.16$, ns. Boys' rates of relational aggression did not differ significantly when interacting with male and female classmates, $F(1,21) < 1.0$, ns (see Table 2).

The 2 (focal child gender) \times 2 (peer gender) ANOVA for nonverbal aggressive behavior in the coloring task did not produce a significant, two-way interaction, $F(1,42) = 3.29$, ns. There were no other significant effects (see Table 2).

For physical aggression during the coloring task, the 2 (focal child gender) \times 2 (peer gender) ANOVA produced no significant main effects, $F_s(1,42) < 1.0$, ns, and no significant interaction, $F(1,42) = 2.71$, ns (see Table 2).

To summarize, predictions pertaining to Goal 1 were largely confirmed; in each social setting, girls displayed more relational aggression than boys while boys displayed more physical and verbal aggression than girls, and children received more physical and verbal aggression from male peers, and tended to receive more relational aggression from female peers.

Validity of Teacher Measures of Aggression

Partial correlations were used to associate teacher ratings on each subscale of the PSBS-TF and frequencies of observed behavior during free play (Goal 2) while controlling for the number of playmates each child encountered during observations. These partial correlations revealed considerable agreement between methods of assessment. Teacher ratings of children's relational aggression and observed relational aggression correlated $r(17) = .48, p < .05$, for boys and $r(19) = .54, p < .01$, for girls. Teacher perceptions of boys' overt (physical plus verbal) aggression and observations of overt (physical plus verbal) corresponded, although not significantly, $r(17) = .40$, ns. For girls, however, the measurements of overt (physical plus verbal) aggression failed to correspond, $r(19) = .03$, ns. Overall, teacher ratings of aggression on the PSBS-TF were generally predictive of children's observed behavior.

Stability of Aggressive Tactics Between Contexts

To address predictions about the stability of aggressive behavior (Goal 3), correlations were computed between aggression rates recorded during the structured and free play contexts for each child. For individual boys, physical aggression was relatively stable across contexts, $r(17) = .64, p < .01$, while rates for verbal and relational aggression were not, $r(17) = -.08$ and $-.28$, ns, respectively. For individual girls, rates were relatively stable for relational aggression, $r(19) = .48, p < .05$; for physical aggression, $r(19) = .45, p < .05$; and for verbal aggression, $r(19) = .46, p < .05$.

In order to investigate the degree to which setting interacted with gender to influence aggressive style, a 2 (focal child gender) \times 2 (context: free play, coloring task) \times 3 (aggression type: physical, verbal, and relational) ANOVA with repeated measures on the last two factors was performed. The ANOVA revealed a significant main effect for aggression type, $F(1,39) = 46.10, p < .001$. Simple effect comparisons revealed that verbal aggression ($M = 17.75$) was the most common form of aggression across contexts, compared to either physical aggression ($M = 6.88$), $F(1,39) = 37.42, p < .001$, or relational aggression ($M = 7.38$), $F(1,39) = 72.68, p < .001$. Meanwhile, neither the main effect for context, $F(1,39) = 2.50$, ns, nor the main effect for focal child gender were significant, $F(1,39) < 1.0$, suggesting that overall rates of aggression were similar across contexts and gender.⁷

The ANOVA yielded a two-way interaction between aggression type and context, $F(1,39) = 9.67, p < .001$ (see Table 3). Simple effect tests revealed that children were more physically aggressive in the free play ($M = 4.33$) compared to the structured task context ($M = 2.55$), $F(1,39) = 38.97, p < .001$. Children were also more relationally aggressive in the free play ($M = 5.33$) than in the structured context ($M = 2.05$), $F(1,39) = 59.08, p < .001$. In contrast, children were more verbally aggressive when performing the structured task ($M = 10.50$) than when playing ($M = 8.18$), $F(1,39) = 134.04, p < .001$.

The overall ANOVA also produced an interaction between aggression type and gender, $F(1,39) = 6.10, p < .01$. Simple effect analyses of the interaction revealed, as predicted, that boys were more physically aggressive than girls across contexts, $F(1,39) = 4.90, p < .05$, whereas girls were more relationally aggressive than boys across contexts, $F(1,39) = 6.83, p < .01$. Tests did not reveal a significant difference between boys and girls for verbal aggression, $F(1,39) < 1.0$, ns. There was no significant three-way interaction, $F(1,39) = 2.53$, ns.

Table 3. Mean Frequencies of Aggressive Behavior Displayed by Focal Children in the Free Play and the Coloring Context

Aggression	Focal Boys			Focal Girls		
	Mean	SD	Range	Mean	SD	Range
Free Play						
Physical	6.53	5.35	0–19	2.33	1.71	0–06
Verbal	9.42	4.43	0–18	7.05	4.30	0–15
Relational	3.63	4.26	0–16	6.86	4.00	0–16
Coloring Task						
Physical	2.84	4.60	0–15	2.30	2.90	0–09
Verbal	11.16	9.10	0–35	9.90	7.56	0–25
Relational	1.53	1.71	0–06	2.52	2.77	0–09

Note: Means reported in between-context analyses were not adjusted means (see text, p. 269). Based on completed data for 19 focal boys and 21 focal girls.

In summary, analyses across contexts suggested that the tactics individual girls used in one setting were typically used in the other. For individual boys, only physical aggression rates were concordant across contexts. At the group level, boys were persistently more physically aggressive and girls were reliably more relationally aggressive across contexts. In these ways, aggressive tactics appeared to be relatively stable.

Aggressive Tactics and Sociometric Standing

To examine whether aggressive tactics related to sociometry (Goal 4), partial correlations were computed between focal children's aggressive tactics during free play and their social standing (teacher-rated dominance and peer-rated acceptance) while controlling for the number of male and female peers with whom they interacted. As reported in Table 4, analyses showed that dominant boys were verbally aggressive with male peers and relationally aggressive with female peers. Dominant girls deployed overt aggressive tactics (verbal and physical) against their female peers. Only one significant relation emerged between aggressive tactics and peer acceptance; girls who were physically aggressive with male peers were unlikely to be generally accepted by classmates.

Discussion

Consistent with current thinking, behavioral observations revealed that preschool boys and girls relied on different aggressive tactics when interacting with peers during free play (Crick *et al.*, 1997, 1999). Boys exhibited more overt (physical and verbal) aggression than did girls. Girls displayed more relational aggression than did boys. As victims, children received more physical and verbal aggression from male playmates and tended to receive more relational aggression from female playmates. The behav-

Table 4. Partial Correlations Between Aggressive Behavior and Two Measures of Sociometric Status

Focal Child Gender	Physical Aggression		Verbal Aggression		Relational Aggression	
	Male Peers	Female Peers	Male Peers	Female Peers	Male Peers	Female Peers
Focal Child Peer Acceptance						
Boys	-.28	.11	-.22	-.37	-.12	.04
Girls	-.45*	.12	-.16	.01	.02	-.21
Focal Child Dominance						
Boys	.14	-.05	.56**	.10	.30	.49*
Girls	.02	.47*	.20	.58**	.01	.27

Note: Peer acceptance and dominance scores were derived from teacher ratings. Aggression scores were based on behavioral observations. Total number of interactions with male or female peers was controlled in these analyses (see text, p. 270). * $p < .05$; ** $p < .01$.

ioral tactics children deployed during free play were independent of the gender of playmates except in the case of physical aggression; in this case, boys directed more physical aggression toward male than toward female playmates, as predicted.

Gender differences in aggression were attenuated during the structured, coloring task when an adult (experimenter) was present (Brody, Stoneman, & Wheatley, 1984). Under these conditions, rates of physical aggression declined and gender differences diminished relative to those observed during free play. Specifically, boys and girls did not differ reliably in the display of physical or nonverbal aggression. The boys and girls in our study apparently adapted their interactive styles to fit the more intimate, supervised situation of the coloring task. Despite this shift in tactics, however, in the structured context girls and boys again distinguished themselves. Girls invoked relational aggression more than did boys, especially when interactants were female rather than male. Boys used more verbal aggression than did girls when interacting with males.

Moreover, when analyses directly compared rates of aggression across contexts, differences in aggressive styles persisted for both girls and boys. Across free play and structured contexts, girls generally produced more relational aggression than did boys and boys typically displayed more physical aggression than did girls. These performance differences did not mean that boys and girls were incapable of deploying gender-atypical aggressive tactics. For example, boys were observed using both physical and relational aggression during free play and structured interactions. However, the continuity in behavior across different social contexts indicated that gender differences were robust at the group level.

At the individual level, children were consistent in their use of aggressive tactics. Correlations between individual rates of aggression revealed that boys who were

physically aggressive during free play also used physical aggression during structured interactions. Girls' rates of physical, verbal, and relational aggression during free play were consistent with their rates of each type of aggression in the structured setting. These anticipated findings parallel the reports of researchers who found consistency in the externalizing behavior of older children (Cairns *et al.*, 1989; Crick & Dodge, 1994; Denham *et al.*, 2000).

Unexpectedly, children who displayed aggressive strategies that crossed gender boundaries were often those whom teachers perceived as dominant among their peers. For example, dominant, influential boys were verbally aggressive with male playmates but relationally aggressive with female playmates. Dominant, influential girls were overtly aggressive with female playmates. Crick (1997) proposed that such gender-atypical behavior may lead to adjustment problems, but the agonistic nature of dominance in the preschool years (Hawley, 1999; Hawley & Little, 1999) perhaps protects very young children from such a fate. Alternatively, the early rehearsal of gender-typical and atypical aggressive strategies may lead some children to become influential among both same and other-sex peers later in life. In either case, future research should examine the consequences of gender non-normative aggressive behavior at different developmental stages (cf. Pellegrini & Long, 2002; Pettit, Bakshi, Dodge, & Coie, 1990).

Although we found peer acceptance to be generally unrelated to the types of aggressive behavior preschoolers deployed, one finding confirmed Crick's contention that gender-atypical aggression is associated with psychological adjustment problems (Crick *et al.*, 1997, 1999). The one finding we uncovered involved girls; those atypical girls who directed physical aggression toward male playmates were less likely to be accepted by peers. Crick and her colleagues reported similar results based on teacher and peer reports of aggression and acceptance among school-aged children (Crick, 1997; Crick & Grotpeter, 1995). Taken together, these findings suggest that studying gender non-normative aggressive styles (Crick, 1997; Henington *et al.*, 1998) beginning in preschool is important for understanding and identifying children who may be at risk for maladjustment. Moreover, because we found some discrepancy between teacher reports of physical aggression and its behavioral measurement, our research also suggests that multi-method probes may be essential to accurately assess aggressive tendencies in this early age group.

To what degree do differences in the measurement of aggression and its outcomes contribute to discrepancies in reports of the consequences of aggressive behavior? Data based on teacher reports, peer nomination, and observations of aggression do not always converge (Huesmann, Eron, Guerra, & Crawshaw, 1994; McNeilly-Choque *et al.*, 1996). In our study, teacher reports of boys' and girls' aggressive styles provided a fairly accurate forecast of observed behavior. Physical aggression was a notable exception, produced perhaps by gender stereotypes that cognitively morphed boys' acts of physical aggression into 'roughhouse' play (Condry & Ross, 1985) and perceptually transformed girls' physical aggression into behavior judged as unintentional and inconsequential (Susser & Keating, 1990). In contrast to McNeilly-Choque *et al.* (1996), teachers' perceptions of relational aggression were more consistent with behavioral accounts than were their perceptions of physical aggression. Nevertheless, our results in combination with those of McNeilly-Choque *et al.* (1996) offer substantial behavioral confirmation of the teacher report techniques relied upon by other researchers studying gender and aggression (e.g., Crick & Grotpeter, 1995; Crick *et al.*, 1997, 1999; Rys & Bear, 1997). Thus problems in assessing the consequences

of aggression may not be in the measurement of aggression itself but in the measurement of its costs and benefits in terms of social acceptance and social influence.

Crick and Grotpeter (1995) posited that boys and girls aggress differently in order to facilitate distinctly different, gender-specific social goals: boys seek physical dominance and girls desire secure social relationships. However, context may play more of a role in these gender-based social motives than originally thought. Humans as well as other primates establish and maintain social influence by signaling both dominance and intimacy (De Waal, 1989; Keating, 2002). What distinguishes the aggressive motives of boys and girls may in fact relate to which tactic is most effective given different contextual requirements. Overt, direct displays of physical or verbal prowess would support individual distinctions or ranks needed to establish a recognizable hierarchy. Covert, relational aggressive acts would be more compatible with the appearance of equality and with communal goals than would overtly aggressive behavior. Thus, the essential 'gender' difference may be that boys gravitate toward contexts in which overt aggressive tactics pay off by enhancing *status distinctions* among individuals, while girls are drawn to contexts in which relational aggression can be used to effectively threaten the *status diffusion* characteristic of communal social bonds. Future investigations of children's aggressive styles should be designed to explore both the effects of context and gender by recording boys' and girls' behavior in social situations that highlight either dominance or communal goals. By observing children in different social contexts, both gender-linked aggressive styles and individual competencies to modify aggressive behavior to fit different social situations may be discovered.

The predicted links between gender and aggressive styles emerged despite the modest sample size of the preschoolers we studied, suggesting that the associations we examined were relatively strong. Replications of our work, currently in progress, will need to access larger, more diverse samples of children. In addition, given that relational aggression often requires a group context (e.g., gossip and secret spreading), small groups of peers (e.g., triads) should be studied. Inclusion of a broad range of potential concurrent and future adjustment problems (e.g., peer rejection, internalizing and externalizing problems, emotional competence) would best put the notion of girls as experiencing 'benign childhoods' (Zahn-Waxler, 1993) to the test (Denham, 1998; Denham *et al.*, 2000, 2001). Based on empirical work with older children, future studies should explore the role of jealousy and young children's reactions to gossip and other relationally aggressive acts (Kuttler, Parker, & La Greca, 2002). Finally, to understand the developmental trajectories of aggressive and victimized preschoolers, future research must include prospective longitudinal designs in which young children are assessed observationally for potential indicators of the gender-linked subtypes of aggression.

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Notes

1. The aware male observer was primarily used for reliability assessments only during free-play observations and this observer was used in analyses less than 20% of the time.

2. In keeping with past literature, in the present study verbal aggression included verbal threats of harm (cf. Crick *et al.*, 1999).

3. Observers also recorded nonverbal aggressive acts during free play but these measures were dropped as inter-observer agreement was low.

4. An independent sample of ten preschool children viewed the three pictures to be colored and selected the best crayon for the job. The white crayon was never preferred. The pink crayon was preferred for 'Piglet,' the orange for 'Winnie the Pooh,' and the purple crayon for the 'Easter Egg.'

5. The coloring task consisted of seven boy-boy dyads, six girl-girl dyads, and ten boy-girl dyads for the first-time pairings.

6. Behavioral records revealed that children played mostly with same-sex peers. Using summary counts of playmates as the dependent variable, a 2 (focal child gender) \times 2 (peer gender) ANOVA with repeated measures on the latter factor produced a significant interaction, $F(1,42) = 22.77, p < .001$. A breakdown of the interaction revealed that boys played with more boys than girls, means = 6.25 and 3.00, $F(1,19) = 5.24, p < .05$. Girls played with more girls than boys, means = 8.45 and 4.15, $F(1,23) = 19.82, p < .001$.

7. For purposes of the between-context analyses the reported means are not adjusted for playmate number as the data from the coloring paradigm cannot be corrected given that this was a controlled feature of the study.