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Preschool Children's Pretend and Physical Play and Sex of Play Partner: Connections to Peer Competence

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This study was designed to examine associations between preschool children's pretend and physical play with same-sex, other-sex, and mixed sex peers and children's social competence with peers. Sixty predominately middle-class preschoolers (33 boys, 51 European-American) were observed on the playground at their school over a period of 4 months. Children's same-sex, other-sex, and mixed-sex peer play was observed, and teachers and peers provided assessments of children's social competence. Analyses revealed that children who engaged in more same-sex pretend play were better liked by peers and were viewed by teachers as being socially competent. In addition, girls who engaged in same-sex exercise play and boys who engaged in same-sex rough-and-tumble play were better liked by peers, whereas boys who engaged in rough-and-tumble play with other-sex peers were less liked by peers. The results suggest that child gender and gender of playmate are important factors in the association between pretend play and rough-and-tumble play and children's social competence with peers.

KEY WORDS: pretend play; physical play; sex of peer partner; peer competence

Theoretical and empirical evidence suggests that play is a context that has immediate, as well as long-term, consequences for children's social competence with peers (for reviews see Creasey, Jarvis, & Berk, 1998; Fisher, 1997). Play is considered to be both a reflection of children's social competence with peers, as well as a direct facilitator of skills that contribute to positive peer relationships (Creasey et al., 1998). Researchers have found that both the amount and the quality of children's play are associated with measures of peer competence (Connolly & Doyle, 1984; Howes & Matheson, 1992; Rubin & Maioni, 1975). In addition, evidence suggests that some children, particularly those from disadvantaged backgrounds, experience improvements in peer interaction skills following play training (Rosen, 1974; Saltz & Johnson, 1974; Smilansky, 1968). Although the question of cause-and-effect between play and children's social competence with peers remains open, it is clear that there is a linkage between children's play and the quality of their relationships with peers. However, play is a complex and multidimensional phenomenon that includes a variety of structural and social components (Perlmutter & Pellegrini, 1987; Rubin & Coplan, 1998). Consequently, despite the large body of empirical data that includes assessments of multiple dimensions of children's play behavior, questions remain concerning what aspects of play are associated with children's social competence with peers.

Sex of playmates appears to have a role in both the type of play in which children engage, as well as children's social status in the peer group. Gender segregation is a ubiquitous characteristic of preschool children's interactions with peers, as children spend the majority of their time in same-sex peer play (Maccoby, 1998; Maccoby & Jacklin, 1987). Nevertheless, preschool children do play in other-sex and mixed-sex peer groups, although these interactions tend to be of limited duration and of

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lower sophistication than same-sex peer interactions (Fabes, Martin, & Hanish, 2003; Martin & Fabes, 2001). Moreover, individual differences in children's propensity to play in same- or mixed-sex peer groups have important social consequences, as children who regularly violate gender boundary rules in playmate choices are unpopular with peers (Ladd, 1983; Sroufe, Bennett, Englund, Urban, & Shulman, 1993). Together this evidence suggests that, regardless of the type of play in which children engage, children who engage in more mixed-sex peer play may be less liked by peers. Another possibility is that different play forms have different consequences for how well liked children are by same- and other-sex peers. Children show a strong same-sex bias in reporting with whom they would prefer to play (Martin, 1994), and such bias appears to influence children's sociometric choices, in that same-sex peers are rated as being more liked than other-sex peers, and children who are liked by same-sex peers are not necessarily liked by other-sex peers (Hayden-Thomson, Rubin, & Hymel, 1987). Thus, to the extent that a particular play form is more attractive to girls than to boys, or vice versa, children who more frequently engage in play that is preferred by same-sex peers may be better liked by same-sex peers than by other-sex peers.

Maccoby (1998) suggested that boys' preference for rough-and-tumble play, and boys' concomitant orientation toward dominance and competition, may be a primary explanation for children's gender segregation. That is, these aspects of boys' interactions are aversive to girls, whereas boys find playing with girls less interesting than playing with other boys because girls do not respond to boys' bids for rough-and-tumble, or competitive, play. Consistent with this proposal evidence suggests that physical activity play, particularly rough-and-tumble play, is more characteristic of boys' peer interactions than girls' peer interactions (DiPietro, 1981; Pellegrini, 1989; Lindsey & Mize, 2001; Whiting & Edwards, 1988). Furthermore, Bukowski, Gauze, Hoza, and Newcomb (1993) found that boys who liked activities that required gross motor skills (rough-and-tumble play) showed a stronger same-sex preference than did boys less interested in these activities. Given the prominent role that physical activity play, and rough-and-tumble play specifically, has in children's gender segregation, it seems reasonable to speculate that physical activity play may have different consequences for boys' and girls' peer relationships (Flannery & Watson, 1993; Humphreys & Smith, 1987). That is, because rough-and-tumble play is more characteristic of boys' than of girls' interactions with peers, it may be that boys who engage in more rough-and-tumble play are better liked by peers, whereas girls who engage in more rough-and-tumble play may be less liked by peers. To date, the possibility of gender-specific links between particular play forms and children's social competence with peers has yet to be examined.

The social consequences of children's rough-and-tumble play have received some empirical attention, however, findings from this work are inconsistent. Specifically, although Pellegrini and his colleagues (Pellegrini, 1988, 1993, 1994) have reported associations between rough-and-tumble play and measures of social competence, other researchers have found that children who engage in high levels of rough-and-tumble play are less liked by their peers (Hart, DeWolf, Wozniak, & Burts, 1992; Ladd & Price, 1987). The discrepancy among these sets of studies may reflect differences in the age of children studied, in that the Hart et al. (1992) and Ladd and Price (1987) studies focused on preschool age children, whereas the studies by Pellegrini (1988, 1993, 1994) included elementary age children and adolescents. As Hart et al. (1992) suggested, it may be that rough-and-tumble play serves different functions at different ages, so that for preschool age children rough-and-tumble play is linked to low social competence, whereas for older children rough-and-tumble play is linked to high social competence. In a related vein, it also is possible that the sex play of peer play partners with whom children engaged rough-and-tumble play may account for discrepancies across studies. For example, children in Hart et al. (1992) and Ladd and Price (1987) studies may have engaged in more physical play with other-sex children which accounts for the link to being less liked by peers. Because the authors of these studies did not consider the sex of children's play partner, this possibility remains to be examined. Given the discrepancies among the studies, additional research is needed to clarify whether rough-and-tumble play has positive or negative consequences for boys' and girls' peer relationships, and to identify what role sex of play partner may have in such connections.

According to Pellegrini and Smith (1998), rough-and-tumble play falls under a broader category of play known as physical activity play, which is defined as: moderate to vigorous physical activity that takes place in a playful context (Simons-Morton et al., 1990). Another subtype of physical activity play is exercise play, which is defined as "gross locomotor movement in the context of play" (p. 578). Exercise

play tends to peak around the age of 4–5 years. Pellegrini and Smith (1998) suggested that exercise play advances children's motor development, which improves their ability to engage in interaction with peers, and thus may be associated with children's social competence. Despite the hypothesized contribution of exercise play to children's peer interactions, to the best of our knowledge no empirical evidence exists to support this connection. Likewise it is unclear to what extent there may be gender differences in children's engagement in exercise play, or what role exercise play may have in children's gender segregation.

Another form of play that has been linked to children's social functioning is pretend play. The fact that the amount of time children spend in pretend play peaks during early childhood (Fein, 1981), and the fact that children's interaction with peers during the preschool years occurs primarily in the context of play (Brownell & Brown, 1992), suggests that pretend play may have particular significance for young children's peer relationships. Consistent with this premise, evidence suggests that preschool children who engage in more sophisticated pretend play experience social advantages, particularly in terms of being better liked by peers (Connolly & Doyle, 1984; Doyle & Connolly, 1989; Howes & Matheson, 1992; Howes, Unger, & Matheson, 1991; Rubin & Maioni, 1975).

Although connections between social competence and pretend play have been found for both girls and boys, there is some evidence for gender differences in children's pretend play. Some studies indicate that girls engage in more pretend play with peers than boys do (Jones & Glenn, 1991; Lindsey & Mize, 2001; Wall, Pickert, & Gibson, 1990; Weinberger & Starkey, 1994; Werebe & Baudonniere, 1991), whereas other studies indicate that boys engage in more pretend play with peers than girls do (Doyle, Ceschin, Tessier, & Doehring, 1991; Rubin, Maioni, & Hornung, 1976; Rubin, Watson, & Jambor, 1978; Singer, 1973). However, the majority of researchers report no differences in the amount of pretend play girls and boys engage in with peers (e.g., Connolly & Doyle, 1984; Farver & Shin, 1997; Howes, Unger, Seidner, 1989; Pellegrini & Perlmutter, 1989; Rubin & Maioni, 1975). As suggested by Goncu, Patt, and Kouba (2002), differences in methodologies or observational settings across studies may account for these discrepancies. According to these authors (Goncu et al., 2002) more naturalistic studies of children's pretend play, in contexts where children have a wide range of choices, and chose what type of play to engage in without intervention or manipulation, will help to elucidate whether there are gender differences in children's participation in pretend play. A clear understanding of possible gender differences in the occurrence of pretend play will, in turn, assist in formulating hypotheses concerning how pretend play is linked to girls' and boys' social competence with peers.

When considering different forms of play, it is important to note that children often combine multiple play forms. For example, rough-and-tumble play often contains elements of pretend or fantasy play (Flannery & Watson, 1993; Pellegrini & Perlmutter, 1988; Smith & Connolly, 1990). Because most researchers focus on either pretend or physical play, instances in which these forms co-occur are usually combined into a larger category. As pointed out by Pellegrini (2002), because most research has been focused on pretend play, the prevalence of physical activity play during the preschool period may be under reported. It may also be that connections between particular play forms and children's functioning have been obscured due to the failure to delineate clearly between pretend and physical activity play. Moreover, the possibility that the combination of pretend and physical activity play may make unique contributions to children's functioning has yet to be examined. For these reasons, research designed to investigate pretend play, exercise play, and rough-and-tumble play, as well as combinations of these different forms of play, is needed in order to identify possible gender differences in the prevalence of different play forms, as well as to specify possible connections between play and children's peer competence.

There were two goals in conducting this study. First, we wanted to obtain descriptive data concerning naturally occurring peer play among preschoolers. Specifically, we wanted to assess the amount of exercise play, rough-and-tumble play, and pretend play in which preschoolers engage, and we wanted to avoid confounding the different forms of play. We also wanted to identify the extent to which children engaged in these forms of play with same-sex and other-sex children. On the basis of previous evidence it was predicted that boys would engage in more exercise and more rough-and-tumble play than girls would. Given the discrepancies across studies concerning gender differences in pretend play, no specific hypotheses were formed concerning gender differences in pretend play. The second goal of this

study was to examine the role of pretend and physical play with same-sex, other-sex, and mixed-sex peers in children's social competence with peers. In doing so, we hoped to explore possible differential connections between pretend and physical play and peer relationships for boys and girls. On the basis of previous evidence (Connolly & Doyle, 1984; Howes & Matheson, 1992), children who engaged in more pretend play were expected to have higher social competence than children who engaged in less pretend play. However, given the prevalence of gender segregation in preschoolers' play, as well as their strong same-sex peer preference, it was expected that children who engaged in pretend play with same-sex peers would be better liked than children who engaged in pretend play with other-sex peers. As for physical play, given the lack of empirical data on exercise play and discrepancies among the results of existing studies of rough-and-tumble play, no specific hypotheses were formed for the associations between physical activity play and children's social competence. Likewise no specific hypotheses were formed concerned the combined forms of pretend and physical activity play because of lack of previous research in the area.

METHOD

Participants

Over a period of 2 consecutive years, 60 children (33 boys; 27 girls) who ranged in age from 48 to 73 months ($M = 57.61$) were recruited from four classrooms at a university-sponsored child-care program. Fifty-one children were European American, four were African American, and five were of other ethnic origin. The families were primarily from the middle- and upper-middle class, 86% of the fathers were employed in professional occupations (based on Total-based Socioeconomic Index; Entwisle & Astone, 1994). The participants represented 61% of all children enrolled in these classrooms (eight children failed to receive parental consent, researchers were unable to collect sociometric data for seven additional children, and 18 children from Year 2 had participated in Year 1 and thus were excluded from the study to avoid redundancy of data). There were 41 children from Year 1 and 13 children from Year 2. Comparisons by *t*-test revealed no significant differences between the two groups of children on any variables used in the study.

In each year, data were collected over a period of 8 months, from October to May. Sociometric data were collected first, during the months of October and November, approximately 2 months after the beginning of the school year to ensure that children were acquainted with each other. Naturalistic observations of children's behavior while attending preschool were conducted from February through May. Finally, teachers completed ratings of children's social competence during May. Consequently, for all intents and purposes, the data in this report are concurrent in nature, and it is impossible to determine the direction of effect in associations observed among the variables used in analyses.

Measures and Procedures

Sociometric Assessment

Sociometric interviews were used to assess children's classroom peer acceptance (Asher, Singleton, Tinsley, & Hymel, 1979). After identifying by name the photographs of all participating classmates, each child rated his/her classmates as "like a lot," "like only a little, sort of," or "don't like very much" by inserting the photographs into containers on which drawings of a positive ("smiley" face), a negative (frown face), and a neutral face were affixed. On the basis of the ratings by peers, children received scores of 1, 2, or 3 from all classmates; higher scores denote greater liking. The ratings children received were used to compute two acceptance scores for each child: the average rating received from (a) same-sex peers and from (b) other-sex peers. Scores were standardized within classroom and within sex.

Teacher-Rated Social Competence

The head teacher in each classroom was asked to complete the Teacher's Checklist of Peer Relationships (Dodge & Somberg, 1987), which consists of 17 items rated on 5-point Likert-type scales. The checklist comprised three subscales: (a) aggression (e.g., "starts fights with other children"; 4 items; $\alpha = .90$), (b) peer acceptance (e.g., "is sought out by other children to play with"; 6 items; $\alpha = .87$, and (c) sensitivity (e.g., "understands others' feelings"; 7 items; $\alpha = .94$). The scales (i.e., aggression, peer acceptance, and sensitivity) were moderately to highly correlated (absolute values of *r*s ranged from .48 to .75, $M = .57$).

Thus, to reduce the number of variables used in the analyses, a *teacher-rated social competence* score was created for each child on the basis of average scores given by teachers on the peer acceptance scale and the sensitivity scale (13 items total) minus the average scores given by teachers on the aggression scale. Internal consistency for the resulting scale was .95 (17 items). The mean, standard deviation, and range of scores for teacher-rated social competence was 3.77, .83, and 1.43–4.44, respectively.

Naturalistic Observations of Children's Peer Play Behavior

Using observational schemes similar to those employed by previous researchers with young children in school settings (see Mize & Ladd, 1988; Ladd, Birch, & Buhs, 1999), 12 trained research assistants who were unaware of our hypotheses observed children's behavior at preschool each week over a period of 4 months. Because we were interested in assessing children's naturally occurring play, the data from this study are based on observations when children were outside on the playground. At the preschool in which the children were observed there were two 40-min outside play periods each day, one in the morning and one in the afternoon. Following a predetermined, random list of names, researchers observed each child's behavior for 30 s and then coded the child's behavior based on a variety of categories (see below). After coding one child's behavior, the researcher moved to observe the next child on the list, until each child in the classroom had been observed once. Then the researcher started over by choosing a child's name from the list, at random, and proceeding through the list in consecutive order. In this way, the order of observation was changed with each pass to control for order effects. This procedure was repeated on each visit; each researcher averaged three visits to a classroom per week over the 4-month period. A total of 3832 30 s scans were collected over the 4-month period, for an average of 62 scans (31 min) per child, and a range of 54–73 scans (27–36.5 min). The average number of scans for boys was 56.78 (28.39 min), with a range of 52.30 to 59.51 (26.15 to 29.26 min), and the average number of scans for girls was 68.43 (34.22 min), with a range of 52.30–59.51 (26.15–29.26 min). Differences in the observation time across children were the result of absences and limited availability of children. Reliability was assessed by having two coders conduct independent observations on the same children for approximately 25% of all scans, for a total of 900 simultaneously recorded observations.

For each observation, researchers coded the target child's behavior on a variety of dimensions. First, the coder identified the child's social involvement, by noting whether the child was engaged in solitary activity, interacting with one or more adults, interacting with one or more peers, or interacting with both an adult and one or more peers. Reliability between observers for child's social involvement was $\alpha = .96$. Second, if the child was identified as interacting with peers, coders noted if the child was interacting exclusively with same-sex peers, exclusively with other-sex peers, or with both same- and other-sex peers. Third, coders identified the type of activity in which the child was engaged on the basis of following categories: (1) Play: the child is engaged in some form of play activity that appears to have no other purpose than enjoyment, (2) Instructional activity: the child is engaged in some form of activity designed to promote learning or improvement of skills (e.g., labeling objects, outdoor art activity, gardening activity, group exercise activity coordinated by a teacher), (3) Eating: the child is eating snack or lunch, (4) Conversation: the child is engaged in communication with someone, (5) Other behavior: the child is engaged in an activity that does not fall into the activity categories of 1–6 and is not engaged in onlooking behavior or no activity, (6) Onlooking behavior: the child is watching the activity of other children or adults without interacting with them, (7) No activity: the child is unoccupied or is not engaged in any clearly discernable behavior; the child is sitting quietly with no clear focus of attention. Activity could be double coded, so that within a given 30-s segment coders recorded every activity in which the child was engaged by identifying multiple categories as necessary. Reliability for type of activity was $\alpha = .83$.

If children's activity was identified as play, coders next recorded the *form of play* in which the child was engaged. The four play categories used in this study were (1) exercise play: gross locomotor movements that occur in the context of play and are characterized by physical vigor, but which may or may not be social (e.g., running, jumping, climbing) and may or may not involve objects, such as balls, bats, tricycles, monkey bars, etc., (2) rough-and-tumble play: any playful contact or agonistic behavior that is performed in a playful mode and that is social in nature (e.g., tickling, wrestling, grappling, restraining, boxing, spinning, swinging, play

fighting, kicking, hit and run, chasing, and tumbling) and characterized by positive emotion, (3) pretend play: use of play objects to represent other objects, and/or assumption of play roles, including verbal relabeling of objects or role transformations, and (4) other play: any play activity that does not fit into one of the above categories[3] (e.g., singing, drawing). Again, any given segment could be double coded for multiple types of play. Reliability for play type was $\alpha = .86$.

Given our interest in distinguishing between physical play and pretend play, intervals that were double coded as both exercise play and pretend play, and intervals that were double-coded as both rough-and-tumble play and pretend play were counted as a fifth and sixth play category, respectively, and were not included in the exercise, rough-and-tumble play, or pretend play categories. Three sets of scores were created on the basis of proportion of intervals in which children were coded as being engaged with same-sex peers, the proportion of intervals children were coded as being engaged with other-sex peer/s, and the proportion of intervals children were coded as being engaged with mixed-sex peer/s, in exercise play without pretend play, exercise play with pretend play, rough-and-tumble play without pretend play, rough-and-tumble play with pretend play, or pretend play, divided by the total number of 30-s intervals in which the child was coded as being engaged in play. Thus, each child received six scores for play type: (a) *exercise play without pretend play*, (b) *exercise play with pretend play*, (c) *rough-and-tumble play without pretend play*, (d) *rough-and-tumble play with pretend play*, (e) *pretend play only*, and (f) *other play*; for each of the three social participation categories: (a) same-sex play, (b) other-sex play, and (c) mixed-sex play, for a total of 18 proportion scores.

Given the fact that there was variation in the number of observations conducted for each child, it was important to determine if the number of observations was associated with the occurrence of particular behaviors. Consequently, correlations were computed between the number of observational scans and the behavioral variables to be used in analyses. No significant associations were found.

[3]The three play types included in "other" category were (1) functional play: intentional manipulation of objects to elicit their properties (e.g., shaking, rolling), (2) instructive play: naming or requesting naming of objects, colors, or numbers, and (3) construction: building, stacking, arranging of objects, or arranging objects within or on a construction made of blocks.

RESULTS

Preliminary Analyses

Preliminary analyses were conducted to examine relations between age and the other variables used in the study. Correlations revealed that older children had higher teacher rated social competence scores, $r = .35$, $p < .01$. There were no significant associations between child age and child play forms. Correlations also were computed between a measure of fathers' occupational status and all variables to determine if families' socioeconomic status was associated with children's peer competence or play behavior. No significant associations were found.

Descriptive Data

Means, standard deviations, and ranges for children's play forms during same-sex peer play, other-sex peer play, and mixed-sex peer play are displayed in Table I. Same-sex peer play made up the majority of both girls' and boys' play time. Exercise play was the most frequent form of same-sex peer play. Among girls, pretend play was the second most frequent play form, followed by other play, whereas for boys other play was more frequent than pretend play. Same-sex rough-and-tumble play rarely occurred among girls, and there were no instances of same-sex rough-and-tumble with pretend play for girls. In contrast, boys engaged in more rough-and-tumble play, and more rough-and-tumble with pretend play, with same-sex peers, than did girls.

Overall, however, the occurrence of rough-and-tumble play was of low frequency.

Mixed-sex peer play made up 24 and 20% of girls' and boys' play, respectively. Exercise play and pretend play were the two most frequent forms of play that occurred with mixed-sex peers for both girls and boys. Other-sex peer play made up 12 and 13% of girls' and boys' play, respectively. Other play was the most frequent form of play with other-sex peers, followed by exercise play and pretend play, for both girls and boys.

Sex of Child and Social Interaction Effects on Children's Play Form

To examine child sex and sex of peer partner effects on the amount of time children spent in

Table I. Descriptive Statistics for Girls' and Boys' Peer Play Behavior and Social Competence Variables

	Girls ($n = 27$)			Boys ($n = 33$)		
	M	*SD*	Range	*M*	*SD*	Range
Other-sex peer play						
Exercise play	0.05	0.04	0.00–0.07	0.04	0.06	0.00–0.11
Exercise play with pretend	0.00	0.00	0.00–0.00	0.00	0.00	0.00–0.00
Rough-and-tumble play	0.00	0.00	0.00–0.00	0.00	0.00	0.00–0.00
Rough-and-tumble play with pretend	0.00	0.00	0.00–0.00	0.00	0.00	0.00–0.00
Pretend play	0.01	0.09	0.00–0.11	0.02	0.09	0.00–0.13
Other play	0.06	0.11	0.00–0.14	0.07	0.10	0.00–0.16
Same-sex peer play						
Exercise play	0.23	0.20	0.00–0.62	0.21	0.17	0.00–0.51
Exercise play with pretend	0.06	0.08	0.00–0.15	0.04	0.07	0.00–0.17
Rough-and-tumble play	0.01	0.05	0.00–0.08	0.04	0.14	0.00–0.27
Rough-and-tumble play with pretend	0.00	0.00	0.00–0.00	0.03	0.13	0.00–0.20
Pretend play	0.18	0.27	0.00–0.60	0.16	0.23	0.00–0.43
Other play	0.16	0.20	0.00–0.48	0.19	0.22	0.00–0.53
Mixed-sex peer play						
Exercise play	0.09	0.12	0.00–0.18	0.04	0.06	0.00–0.17
Exercise play with pretend	0.00	0.00	0.00–0.00	0.00	0.00	0.00–0.00
Rough-and-tumble play	0.02	0.04	0.00–0.07	0.04	0.11	0.00–0.27
Rough-and-tumble play with pretend	0.00	0.00	0.00–0.00	0.02	0.04	0.00–0.08
Pretend play	0.07	0.13	0.00–0.18	0.04	0.08	0.00–0.16
Other play	0.06	0.09	0.00–0.14	0.03	0.07	0.00–0.13
Social competence						
Average same-sex peer rating	2.56	0.41	1.14–3.00	2.45	0.40	1.22–3.00
Average other-sex peer rating	2.16	0.38	1.21–3.00	2.09	0.43	1.13–3.00
Teacher -rated	3.61	1.27	2.41–4.58	3.46	1.19	2.37–4.48

different play types, arc-sine scores of child–peer interaction were subjected to a 2 × 3 × 6 (sex of child × partner identity × play type) repeated measures multivariate analysis of variance (MANOVA) (See Table I). Play type (exercise play without pretend play, exercise play with pretend play, rough-and-tumble play without pretend play, rough-and-tumble play with pretend play, pretend play, and other play) and sex of peer (same-sex, mixed-sex, other-sex) were within subjects variables, whereas child sex was a between-subjects variable.

On the basis of Wilks' criterion, the MANOVA revealed a significant main effect for partner identity, $F(2, 45) = 30.16$, $p < .001$, $\eta^2 = .33$. This main effect was accounted for by the fact that children spent more time playing with same-sex peers ($M = .64$, $SD = .14$, and $M = .67$, $SD = .18$, for girls and boys, respectively) than with other-sex peers ($M = .12$, $SD = .08$, and $M = .13$, $SD = .11$, for girls and boys, respectively) or with mixed-sex peers ($M = .24$, $SD = .10$, and $M = .20$, $SD = .12$, for girls and boys, respectively). There also was a significant main effect for play type, $F(5, 42) = 21.83$, $p < .001$, $\eta^2 = .24$, which was qualified by a significant sex of child × play-type interaction, $F(7, 84) = 13.25$, $p < .05$, $\eta^2 = .17$. The play-type main effect was accounted for by the fact that children spent more time engaged in exercise play than in any other play form. Children also spent significantly more time engaged in pretend play and other play, than in exercise play with pretend, rough-and-tumble play, and rough-and-tumble play with pretend.

Follow up, one-way ANOVAs were used to interpret the interaction between child sex and play form. These analyses revealed that boys engaged in significantly more rough-and-tumble play, $F(2, 45) = 28.34$, $p < .001$, $\eta^2 = .30$, and more rough-and-tumble play with pretend play, $F(2, 45) = 25.57$, $p < .001$, $n^2 = .26$, than girls did.

Associations Among Play Forms

Correlations among children's play form variables are presented in Table II. Given the fact that gender differences were observed in the amount of children's rough-and-tumble play, correlations were conducted separately for boys and girls. Because of the low frequency of other-sex peer play, and in order to reduce the number of variables used in analyses,

Table II. Correlations Among Play Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Other-sex peer play		−.38**	−.10	−.18	—	−.12	−.32*	.02	—	−.08	—	−.22	−.08
Same-sex peer play													
2. Exercise play	−.33*		.31*	.08	—	.11	.28*	.07	—	.13	—	.02	−.11
3. Exercise play with pretend	−.18	.28*		.14	—	.36*	.10	.04	—	−.08	—	.15	−.05
4. R&T play	−.45**	.05	.14		—	−.02	.14	−.06	—	−.11	—	−.17	.20
5. R&T play with pretend	−.31*	.11	.25	.46**		—	.03	—	—	—	—	—	—
6. Pretend play	−.37**	.27*	.32*	.20	.28*		.21	.11	—	.02	—	.33*	−.13
7. Other play	−.27*	.34**	.18	.11	.02	.22		.06	—		—	.02	.06
Mixed-sex peer play													
8. Exercise play	.15	.30*	.21	−.07	−.12	.11	.08		—		—	.26	.30*
9. Exercise play with pretend	—	—	—	—	—	—	—	—		—	—	—	—
10. R&T play	−.16	.13	.08	−.27*	−.12	−.22	.10	.19	—		—	.13	.23
11. R&T play with pretend	−.03	.22	.38*	.11	.29	.10	.03	.11	—	.24		—	—
12. Pretend play	.34*	.17	.35*	.09	.12	−.08	.14	.14	—	−.27*	.25		.28*
13. Other play	.26*	.11	.14	.04	.07	.18	.16	.27*	—	.10	.10	.30*	

Note. Correlations for boys are presented below the diagonal line.
*$p < .05$. **$p < .01$.

the five play categories were added to form a single other-sex peer play variable, which was used in subsequent analyses. Because of the possibility that child age was confounded with the play form variables, partial correlations that control for age were computed.

Although there were no specific hypotheses concerning these associations, it is interesting to note that there was no association between same-sex play and mixed-sex play that was the same for both boys and girls. In fact, the only significant association for girls indicated that levels of pretend play were consistent across same-sex and mixed-sex peers. For boys, exercise play was consistent across same-sex and mixed-sex peers. In addition, high levels of exercise with pretend play with same-sex peers was associated with high levels of pretend play and rough-and-tumble with pretend play with mixed-sex peers. In contrast, boys who engaged in high levels of rough-and-tumble play with same-sex peers were less likely to engage in rough-and-tumble play with mixed-sex peers. There were no other significant associations between same-sex play and mixed-sex play for boys or girls.

Associations Between Same-Sex Play and Social Competence With Peers

Correlations between play behaviors and measures of children's social competence are presented in Table III. The only consistent finding across the two sexes for same-sex peer play (see Table III) was a significant positive association between pretend play and children's same-sex peer acceptance (accounting for 9% and 12% of the variance, for girls and boys, respectively) and teacher rated social competence scores (accounting for 12 and 10% of the variance, for girls and boys, respectively). For girls only, exercise play was positively associated with both peer acceptance (accounting for 10% of the variance) and teacher rated social competence scores (accounting for 9% of the variance). There were no other significant associations for girls. For boys only, rough-and-tumble play was significantly and positively associated with same-sex peer acceptance (accounting for 9% of the variance) and teacher rated social competence scores (accounting for 7% of the variance). In addition, rough-and-tumble with pretend play was significantly and positively associated with same-sex peer acceptance (accounting for 7% of the variance). There were no other significant associations for boys.

Associations Between Other-Sex Play and Social Competence With Peers

There were no consistent findings across the two sexes for mixed-sex peer play (see Table III). For girls only, mixed-sex pretend play was significantly and positively associated with peer acceptance (accounting for 9 and 10% of the variance in same-sex and other-sex peer ratings, respectively) and teacher-rated social competence scores (accounting for 14% of the variance). There were no other significant associations for girls. For boys only, rough-and-tumble

Table III. Correlations Between Play Variables and Children's Social Competence

	Girls ($n = 27$)			Boys ($n = 33$)		
	Same-sex peer rating	Other-sex peer rating	Teacher-rated	Same-sex peer rating	Other-sex peer rating	Teacher-rated
Other-sex peer play	−.27	−.21	−.30*	−.32*	−.26*	−.32*
Same sex peer play						
Exercise play	.32*	.28	.30*	.07	.11	.09
Exercise play with pretend	.28	.18	.25	.11	.04	.08
R&T play	.05	.04	.01	.31*	.14	.28*
R&T play with pretend	—	—	—	.28*	.11	.14
Pretend play	.31*	.29	.35*	.35**	.26	.32*
Other play	.12	.14	.18	.17	.11	.20
Mixed-sex peer play						
Exercise play	.07	.14	.15	.03	.11	.13
Exercise play with pretend	—	—	—	—	—	—
R&T play	−.13	−.09	−.07	−.28*	−.32*	−.30*
R&T play with pretend	—	—	—	−.26	−.21	−.14
Pretend play	.30*	.32*	.38*	−.31*	−.29*	−.25
Other play	−.23	.14	.07	−.17	−.20	−.18

*$p < .05$. **$p < .01$.

play with mixed-sex peers was negatively associated with both peer acceptance (accounting for 7 and 10% of the variance in same-sex and other-sex peer ratings, respectively) and teacher-rated social competence scores (accounting for 9% of the variance). In addition, mixed-sex pretend play was negatively associated with peer acceptance for boys (accounting for 9 and 8% of the variance in same-sex and other-sex peer ratings, respectively). There were no other significant associations for boys.

DISCUSSION

The results from this study study both replicate and extend the growing body of empirical evidence concerning connections between children's play and their adjustment (Fisher, 1997). Although the cross-sectional nature of the study prohibit the determination of the direction of effect in the associations found, the data do point to a link between children's peer play behavior and their social competence with peers. A noteworthy contribution of this study is the assessment of children's engagement in both pretend play and physical activity play. To the best of our knowledge, this study is the first in which multiple forms of physical play, namely exercise play and rough-and-tumble play, were examined as well as the first in which these forms of physical activity play with and without pretend elements were distinguished. Moreover, our results join with other empirical evidence that points to the importance of considering the role of both child sex and sex of playmate (Coplan, Gavinski-Molina, Lagace-Seguin, & Wichmann, 2001), in examining connections between peer play and social adjustment.

Consistent with the literature on children's development of pretend play (see Goncu et al., 2002, for recent review), the preschool children in this sample spent from 20 to 30% of their time in social pretend play, which was the second most predominate form of peer play. Consistent with the majority of studies on preschool children's pretend play (e.g., Connolly & Doyle, 1984; Farver & Shin, 1997; Howes et al., 1989; Pellegrini & Perlmutter, 1989; Rubin & Maioni, 1975), but contrary to others (e.g., Lindsey & Mize, 2001; Rubin et al., 1978; Weinberger & Starkey, 1994), we found no gender differences in pretend play. Examination of the studies that have reported gender differences in pretend play reveal that most, although by no means all (see Jones & Glenn, 1991; Weinberger & Starkey, 1994, for exceptions), used semistructured and laboratory settings to observe children's play. It may be that gender differences in pretend play are more likely to emerge in such contrived settings than during children's naturally occurring play with peers. Additional research that compares children's pretend play in structured and natural settings is needed to investigate the role that the observational context may have on gender differences in children's pretend play.

Our findings do replicate previous evidence of gender differences in the frequency of children's

rough-and-tumble play (DiPietro, 1981; Fabes et al., 2003; Pellegrini, 1989) in that boys were observed to spend 9% of their time in rough-and-tumble play with peers, whereas girls spent only 3% of their time engaged in rough-and-tumble play. Similar gender differences were observed in the incidence of rough-and-tumble play with pretend elements, which made up 6% of boys' peer play but did not occur for girls. Contrary to previous evidence (Eaton & Enns, 1986), no gender differences were found for exercise play, which made up between 26% and 28% of children's peer play. As suggested by Pellegrini and Smith (1998), it appears that combining both exercise play and rough-and-tumble play into a single physical play category may have led previous researchers to faulty conclusions that girls are less physically active than boys are. Thus, future researchers who focus on the forms of play in which children engage should make distinctions between different types of physical play in order to capture an accurate picture of the complexity of children's play.

A major goal for this study was to address the question of how individual differences in children's engagement in play are linked to their peer relationships. Of particular interest was the identification of the particular dimensions of play that may be associated with social competence with peers. To accomplish this goal we assessed both structural aspects of play and social interactive characteristics of play. Overall, the results of this study join with those of previous research to suggest that connections between children's play and social competence are complex, and they vary on the basis of sex of the child, the form of play, the level of social participation, and the sex of the peer play partner (Coplan et al., 2001; Howes et al., 1989; Pellegrini, 1994). The specific associations observed in this study expand upon previous research and offer possible explanations for discrepancies among the results of previous studies. It is important to note, however, that our findings can not address the question of direction of effect. It is equally possible that children who are better liked by peers engage in particular forms of play as it is that play contributes to children being liked by peers. Questions concerning the direction of effect between play and children's social competence await future longitudinal research.

Findings from this study replicate previous evidence that links pretend play to children's positive peer relationships (Connolly & Doyle, 1984; Flannery & Watson, 1993; Howes et al., 1991; Rubin & Maioni, 1975). Specifically, both boys and girls who spent more time in pretend play with same-sex peers, and girls who spent more time in pretend play with mixed-sex peers, were better liked by peers and were rated by teachers as being socially competent. It may be that pretend play promotes positive peer relationships by providing children with opportunities to negotiate play themes and to take the perspective of others during play (Connolly & Doyle, 1984; Rubin & Maioni, 1975), skills that are important components of peer competence for both boys and girls. Alternatively, children who are more liked by peers may be sought out more often by peers as play partners, and thus may have more opportunities to engage in pretend play. Although questions of causality remain, there is convincing evidence that pretend play has an important connection to children's social competence with peers.

However, the findings of this study also suggest that the connection between pretend play and social competence with peers is complicated by sex of child and sex of playmate. Specifically, boys who engaged in high levels of pretend play with girls were liked less by other boys and were rated by teachers as less competent. Thus, it appears that the social context of pretend play has important implications for boys' peer competence. This finding may reflect gender norms of the preschool peer group that prohibit other-sex peer interaction (Fagot, 1977; Martin, Fabes, Evans, & Wyman, 1999). The fact that this association was found only for boys supports this conclusion, in that the prohibition against other-sex peer interaction appears to be stronger for boys than for girls (Bem, 1993; Thorne, 1993). The fact that the negative association was found only for other-sex pretend play suggests it may also be that there are differences in the types of pretend play in which boys engage with same-sex and mixed-sex peers and that the types of pretend play in which boys engage with mixed-sex peers are indicative of poorer social skills. In a related vein, it may be that boys who are rejected by same-sex peers spend more time in mixed-sex pretend play. Consistent with this possibility, there was no association between boys' levels of pretend play with same-sex and other-sex peers, whereas there was consistency in girls' pretend play across same-sex and other-sex peers. Additional research is needed to understand the mechanisms that account for connections between pretend play and children's social competence and why these connections may vary for girls and boys.

This study also contributes to existing evidence concerning associations between rough-and-tumble

play and peer competence, and our results offer a possible explanation for discrepancies in the pattern of findings across studies. Specifically, evidence suggests that among school age and adolescent children rough-and-tumble play is associated with social competence with peers, particularly for boys (Pellegrini, 1988, 1994), whereas among preschool age children rough-and-tumble play is associated with being liked less by peers (Hart et al., 1992; Ladd & Price, 1987). Although age may be one factor that accounts for the differences in the direction of association across studies, the results of this study suggest that child sex and sex of playmate may account for these differences. Specifically, in this study same-sex rough-and-tumble play was associated with same-sex peer acceptance and teacher rated social competence for boys, but not girls. In contrast, boys who engaged in rough-and-tumble play with mixed-sex peers were liked less by peers and were rated by teachers as less competent. It is important to note that if we had not considered same-sex and other-sex rough-and-tumble play, as well as rough-and-tumble with and without pretend play, as separate categories, or if we had not looked at the separate associations for boys and girls, our data would have yielded a negative association between rough-and-tumble play and measures of children's social competence. Thus, the negative association between rough-and-tumble play and peer competence found by Ladd and Price (1987) and Hart et al. (1992) may have resulted from a failure to consider the sex of playmates with whom children engaged in rough-and-tumble play, as well as failure to consider children's social competence among same-sex and other-sex peers.

The fact that same-sex rough-and-tumble play was associated with peer acceptance, whereas other-sex rough-and-tumble play was associated with being disliked by peers, suggests that peers may view the same behavior differently depending on the context in which it is performed. Rough-and-tumble play has been identified as a type of play that is more characteristic of boys' peer groups than girls' peer groups (Maccoby, 1998; Pellegrini & Smith, 1998). Consequently, it may be that rough-and-tumble play is linked to children's gender stereotyped beliefs, so that boys who break gender roles by engaging in rough-and-tumble play with other-sex peers are subsequently disliked by peers. It also may be that boys who are disliked by same-sex peers are forced to spend more time engaged in other-sex peer interaction in general, which previous research suggests is linked to their being unpopular with peers (Ladd, 1983; Sroufe et al., 1993). Alternatively, there may be some qualitative difference between boys' rough-and-tumble play with same-sex and other-sex children that is not captured in the current data that accounts for differences in peer relationship outcomes. Perhaps rough-and-tumble play with other-sex peers is more likely to include elements of aggression. Further work is needed to explore how rough-and-tumble play with same-sex and other-sex peers may be linked to peer competence for boys and girls.

This study is the first, to the best of our knowledge, to document an association between exercise play and children's social competence with peers. However, this association was true only for girls' same-sex exercise play. It is not clear why exercise play should be associated with girls,' but not boys,' social competence with peers. One explanation may be that there is greater individual variation in exercise play among girls than among boys, such that girls who are more liked by peers are more likely to engage in exercise play than are girls who are liked less by peers. In contrast, boys who are more and less popular with peers may engage in similar levels of exercise play. Consistent with this possibility there was a wider variation in exercise play scores among girls than among boys. Another possibility is that qualitative differences in girls' and boys' exercise play account for different associations with social competence. For instance, the exercise play of girls may involve fewer social partners, so that girls who engage in high levels of exercise play may possess social skills conducive to dyadic interaction. On the other hand, the exercise play of boys may be more likely to take place in the context of large groups which requires a different set of social skills. This hypothesis is consistent with research that suggests that girls and boys display differences in their preference for and engagement in dyadic versus group peer play (Beneson, 1993). Future research on connections between play form preference and children's social competence with peers should include the social composition of girls' and boys' peer play activities.

In addition to the limitation in our ability to offer a directional or causal explanation for the associations between children's play forms and their social competence with peers, it is important to note that the large number of correlations reported increases the likelihood that certain findings will emerge as significant merely by chance. Hence, caution should be exercised in interpreting any particular association. Furthermore, the magnitude of effects for our

findings are relatively low, clearly a function of sample size, and should be understood as such. Additional research with larger and more heterogenous sample would help expand the generalizability of these findings. With these limitations in mind, the results of the current study point to the need for further empirical investigation of the complexity of children's play and provide a guide for future study of the connections between distinct forms of play and children's peer competence.

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