Developmental Psychology
1981, Vol. 17, No. 1, 50-58

0012-1649/81/1701-0050$00.75

Rough and Tumble Play: A Function of Gender

Janet Ann DiPietro
Stanford University

Rough and tumble play, a prosocial behavior whose expression and purpose varies as a function of gender, is investigated in the present study. Subjects were 43 preschoolers, who are part of a longitudinal sample (targets), and 86 playmates (partners). A "playroom on wheels" was designed to maximize the amount of rough and tumble displayed in same-sex triads. Observational coding techniques were devised to record various active and verbal behaviors, including a measure of activity level. Results indicate both quantitative and qualitative differences in the behaviors of the male and female triadic groups. Further, a robust sex difference in the amount and intensity of rough and tumble play was observed for both targets and partners. Analyses of the behavioral components indicate that rough and tumble is distinct from other dominance-oriented or aggressive behaviors in this age group. A hypothesis concerning differential salience of interpersonal cues is presented to account for these findings, and speculations are made concerning the influence of rough and tumble play on subsequent development.

The term *rough and tumble* (hereafter R&T) has been used to designate the set of play behaviors that are displayed during exuberant arousal and that mimic more intentionally aggressive actions. Substantial and consistent sex differences have been reported across a variety of species and cultures. This gender dimorphism appears early in development, with young males being more likely to engage in R&T. In infant and juvenile monkeys, R&T generally involves chasing, hitting, wrestling, and biting. Further, these patterns are not associated with injury in infancy (Dolhinow & Bishop, 1972). Similarly, human children display motor patterns described as "pushing, pulling, hitting, chasing, and wrestling" (Hamburg & van Lawick-Goodall, Note 1, p. 9) almost always without hurting one another. In an extensive cross-cultural investigation by Whiting and Edwards (1973), boys were found to engage in more R&T than girls across a variety of cultures reflecting divergent stages of technological development. In that study, R&T was operationally defined as aggression, which has a strong sociable component, as opposed to assaulting with the intent to injure. No sex difference was observed in injurious assaulting due to its low frequency of display by either sex.

Hartup (1974) considered the possible role of juvenile R&T as direct training in an array of aggressive skills and mechanisms for coping with the affective and physical outcomes that accompany an aggressive encounter. With respect to nonhuman primates, it has also been suggested that R&T contact with peers accounts for much of the variance between individuals in subsequent aggression by providing opportunities for escalation into serious fighting (Harlow & Harlow, 1965). Suomi (1977) proposed that the development of peer attachments in monkeys permits the rehearsal of an aggressive behavioral repertoire in the context of social play and that aggression emerges predominantly in the presence of strangers.

The search for differential socialization practices that are predictive of childhood sex differences in aggression has been remark-

An abbreviated version of this article was presented at the meeting of the Society for Research in Child Development in March 1979, San Francisco. This research was conducted under a Stanford University Graduate Fellowship and was supported by grants from the Ford and Spencer Foundations and National Institute of Health Grant ND-09814-03.

The author would like to thank Eleanor E. Maccoby and Carol N. Jacklin for their generous aid in all stages of this project.

Requests for reprints should be sent to Janet Ann DiPietro, Department of Psychology, Stanford University, Stanford, California 94305.

ably unfruitful (see Maccoby & Jacklin, 1974, chap. 9). However, it has been reported that male infants are "roughed up" by adults or subjected to gross motor manipulations more often than females, particularly at the hands of their fathers (Yarrow, Rubenstein, & Pedersen, Note 2). Recent work has also demonstrated that mothers are more likely to verbally and physically encourage gross motor activities in an "actor" child who is believed to be a boy than when the same child is thought to be female (Smith & Lloyd, 1978). However, it remains unclear whether mothers are acting differently on the basis of cultural stereotypes alone or if their behavior is shaped by actual experience with their own children of either sex. Reports of similar differential treatment by monkey mothers based on infant gender (Mitchell & Brandt, 1970) seem to cast doubt on the determinance of cognitive expectations alone and suggest differences in reactivity to such stimulation based on the infant's gender.

It is evident that males of all ages are not only the instigators but also the recipients of both mock and serious fighting. This pattern is evidenced as early as nursery school (Langlois, Gottfried, & Seay, 1973) as well as in nonhuman primates. Further, this is the case even though males are more likely to retaliate by counterattack than females, a contingency that is demonstrably more aversive (Patterson, Littman, & Brickner, 1967). It also appears that males stimulate motoric activity in other males by their presence alone. Again, this is true of juvenile monkeys as well as human children (Halverson & Waldrop, 1973). Although research findings on activity level per se are equivocal with respect to sex differences, males are the more active sex in certain situations and on certain measures. However, this does not preclude the possibility that qualitatively different activity patterns exist between the sexes that are obscured by quantitative measures alone. Recent findings (Jacklin & Maccoby, 1978) suggest that boys' and girls' reactions to potentially disturbing behavior by another child are largely predicated on the other child's gender. Briefly, it was found that dyads of same-sex partners displayed similar levels of social behavior at 33 months of age. In mixed pairs, however, girls tended to withdraw from male-initiated active play.

The present study was designed to assess the components involved in patterns of active and R&T play by providing a situation conducive to the maximization of these behaviors. Further, the relationship of R&T to both aggression and activity level, which may vary both qualitatively and quantitatively as a function of gender, was investigated.

Method

Subjects

Subjects were 30 male and 22 female preschoolers between the ages of 4 years 1 month and 4 years 10 months (M = 4 years 7 months). These children comprise the first two cohorts of the Stanford Longitudinal Project, being conducted by E. E. Maccoby and C. N. Jacklin, and have been observed periodically throughout infancy and early childhood. Children selected for the present study were those who were attending a nursery school or day-care center in the San Francisco Bay area beginning in September 1977. In all, a total of 43 nursery schools were visited over a period of 11 months. Familial socioeconomic status for the majority of subjects ranged from lower middle to upper middle class. In addition to the longitudinal sample's "target" subjects, two same-sex peers were observed in the experimental situation and were incorporated anonymously into some data analyses.

Materials

A converted mini-mobile home, a 22-foot (6.6-m) Winnebago, served as our "playroom on wheels." An unfurnished and thickly carpeted play area was separated from the driver's area by an opaque vinyl curtain and was illuminated by two side windows. This room measured 7.5 × 10.5 × 6 feet (2.3 × 3.1 × 1.8 m). A 3 × 2 foot (.90 × .60 m) one-way observation window was imbedded in a door on the rear wall. Toy materials included a 4-foot (1.2-m) tall inflated Bobo punching doll (presented during only the latter half of the session), a canvas mat stretched across a large inner tube serving as a "jump-o-leen," a medium-sized plastic ball, and a small stuffed pillow.

Equipment utilized by the observers consisted of adjustible interval beeper boxes, earphones, a stopwatch, and standard stenographer notebooks.

Procedure

This study consisted of three types of observations—those occurring during indoor play, outdoor play, and the trailer session. Since only minimal attention will be given to the results of the first two observation domains

at this time, their procedure will be discussed only briefly. Each target child was observed during free-play time, that is, when the child had some choice of his or her activities. Behavioral coding took place during three 7-minute intervals each of indoor and outdoor free play, for a total time of 42 minutes. The observers, all female students, were introduced to the class as visitors and remained unobtrusive throughout.

The major body of data was collected in the trailer playroom. Most nursery schools were visited at least twice within 1 week, and the trailer session usually took place on the second day, interspersed among the second day's indoor and outdoor observations. Due to variable nursery schedules, it was impossible to standardize the order of the observation sequence. This was not considered to be a confounding circumstance, however, as no ordering effects were observed in preliminary data.

The procedure for the trailer session was as follows: the target child and two same-sex peers were escorted to the trailer by one of the observers, who remained seated in the playroom throughout the session. The selection of the peer playmates was based on the target child's preference if one existed, otherwise on the teacher's judgement of compatibility. Once inside, the visible observer instructed the triad that they could play any way they liked in this room and explained that while they were playing, she would be doing some work. At this point she began her coding duties, signaling the hidden observer, positioned behind the observation window, to do the same. Efforts at interaction with the visible observer were discouraged, and intervention occurred only when the observer judged the play to be getting too active. In such cases, play resumed after a brief break. There was only one premature termination of a play session. Six minutes after the initiation of the session, the Bobo doll was introduced, and play continued for an additional 6 minutes. At the end of the 12-minute session, a brief quieting period was allowed before the children returned to the classroom.

Coding and Reliability

The observational coding method utilized in the present study by the hidden observer was based on one developed by Clarke-Stewart (1973). This technique utilizes fixed interval units of measurement resulting in tallies of behavioral frequency. The occurrence of any of 14 target behaviors was recorded in a shorthand code by the hidden observer on the left side of a standard stenographer's note pad. A list of these behaviors and their operational definitions is presented in Table 1. Only those behaviors of the partners' that elicited a response from our target subject were recorded in the right-hand column, on the line preceding the response. These partner behaviors, recorded only to provide a context for the target's response, included verbal suggestions and demands and physical assaults. Intervals were demarcated by slashes in the middle of the page. Interval length was set at 6 sec in the trailer and 10 sec in the free-play observations. A behavior was recorded as occurring only once within each interval unless it was interrupted and then resumed within that same period. Also, a rating of activity level was developed on an interval scale of 1 (low activity) to 7 (high activity) for the target child alone. This rating was made at the end of each 6-sec interval and represents the observer's subjective averaging of the energy expenditure accompanying the behaviors in that period. Activity level was used to refer to the vigor of behavior, not just its form, although the two are obviously correlated.

The development of the codes and observer training took place during the 2 months prior to testing. Interjudge agreement was determined from a total of 10 pretest and experimental sessions in which two hidden observers coded for the target child. Final reliabilities, calculated by intraclass correlation, ranged from .94 to .99 (M reliability r = .98). Reliabilities were based on final individual behavioral rates averaged over an entire observation session, with the same parameter utilized in all analyses. Although a more microscopic interval-to-interval agreement measure may have been a more desirable index of reliability, it was not feasible due to slight discrepancies in interval length measured by the timing devices and occasional "lags" by coders. Reliability for the 7-point activity scale, also averaged across each of the 10 observation sessions, yielded an intraclass correlation of .98. These high levels of interobserver agreement were maintained through extensive training and frequent monitoring by the principal investigator. Unfortunately, no reliability estimate for the distinction between aggressive and playful assaults is available due to the infrequent occurrence of the former. However, there is indirect evidence that this distinction is viable, since during reliability testing, no two observers ever disagreed on the attribution of a playful physical assault.

A second source of trailer data is a record of selected partner activities, distinct from those instigative behaviors recorded by the hidden observer. This information can be used to provide a baseline picture of the amount of physically arousing behavior occurring in the triad as a whole. A checklist was devised for the visible observer on which she recorded the occurrence of designated behaviors in each 6-sec interval. A category was checked if one or both of the two partners were engaging in the behavior. The level of distractions for this observer was high, so it was necessary to keep this checklist minimally complex. Four behaviors considered to be most indicative of high energy expenditure were used: partner assaults on another child, assaults on objects, jumping, and wrestling. Interjudge reliability was calculated by the addition of a third coder and was determined to be .94, .97, .98, and .94, respectively (M interjudge reliability = .96).

Results

All data analyses were performed on transformations of the raw scores derived by dividing the number of times each behavior was recorded by the total amount of 6-sec intervals in the observation period. Thus, final scores for each variable represent the proportion of intervals in which a given behavior occurred. This transformation was necessary due to discrepancies in the total number of observation intervals for each

Table 1
Summary List of Coded Behaviors

Behavior variable	Observational definition
Playful physical assault	Discrete action consisting of hitting other child with body part or object; grabbing clothing or appendage; pushing; tripping. Facial features of both actor and recipient must convey excitement or positive affect. Accompanying vocalizations of actor must be nonthreatening and verbal response of recipient, nonprohibitive. Outcome must not be accidentally injurious or distressing.
Aggressive physical assault	Includes same motor actions described for playful assault. Distinguished as aggressive on basis of facial features of actor (conveying anger or malice) and recipient (fear, anger, distress). Accompanying vocalizations of actor may include insults and threats, and those of recipient may be prohibitive ("Stop that!") or distressed ("That hurt!"). Outcome may be physically or emotionally distressing.
Physical assault on object	Hitting, biting, kicking, or throwing Bobo doll or trampoline.
Wrestling	Continuous, overall body contact that can take the form of piling on top of one another, tumbling together on the floor, dragging one another down.
Jumping	Jumping or bouncing on trampoline in standing or sitting position; jumping on floor.
Egoistic demanding	Verbal attempt to change the behavior of another child to satisfy one's own desires, in the form of a command (e.g., "Give me that!").
Responsible suggesting	Proposal of rules, activities, and behaviors that contribute to the cooperative functioning of the group (e.g., "Let's take turns.") or an individual.
Taking	Attempt to remove a toy or other object from another's possession through physical force.
Awaits turn	Momentary lull in activity while waiting for a turn to play with a given toy. Used only when the group is taking turns in an orderly, systematic fashion.
Novel play	Uses the toys in ways not usually ascribed to them (i.e., the behaviors are not accounted for by physical assault on object or jumping). Includes riding on Bobo, using the trampoline as a spaceship, and other fantasy activities that do not involve the provided toys.
Social approach to adult	Addresses, questions, approaches, or otherwise tries to initiate interaction with the visible observer.
Observing	Passively watching the behavior of other children or the visible observer; looking out the trailer window; staring into the one-way observation mirror.
Comply/noncomply	Behavioral acceptance or rejection of another's verbal demand or suggestion.
Yield/nonyield	Response to another's playful or aggressive assault (submission/retaliation), or take attempt (relinquishment/retention of object).
Activity level	Subjective averaging of the activity level displayed in the preceding 6-sec (trailer) or 10-sec (indoor/outdoor) interval. Ranges from 1, representing low energy expenditure (sitting, standing, observing for most of the interval with no locomotion), to 7, highly energetic behavior (roughhousing, vigorous running, excited play).

subject, resulting from occasional termination of the play session by the visible experimenter before the hidden observer had completed her coding duties. Similarly, final ratings of activity level, based on the 7-point scale, represent the target's mean activity level across all intervals for that session. Those measures that were also recorded for the partners were analyzed both separately and in conjunction with the target's scores to yield an overall group measure.

A list of the measures that demonstrated

sex differences in occurrence is presented in Table 2. Male targets and their partners were significantly more likely to playfully assault one another, wrestle, and hit Bobo. A combination variable called rough and tumble was derived from adding wrestling

Table 2
Mean and t*-Value Comparisons of Male and Female Trailer Play Behaviors and Activity Level*

Variable	Sex	M[a]	df[b]	t
		Trailer play behaviors		
Playful physical assault				
Target	Male	5.34	35	2.80**
	Female	1.21		
Partners	Male	6.67	30	3.66***
	Female	1.19		
Aggressive physical assault				
Target	Male	.08	29	1.79
	Female	.00		
Wrestling				
Target	Male	9.01	46	2.36*
	Female	3.49		
Partners	Male	18.10	45	3.37**
	Female	6.06		
Rough and tumble				
Target	Male	14.43	43	3.32**
	Female	4.70		
Partners	Male	24.77	42	4.12***
	Female	7.25		
Physical assault on object				
Target	Male	20.36	48	3.04**
	Female	10.79		
Partners	Male	30.35	47	3.37**
	Female	17.51		
Jumping				
Target	Male	9.21	50	−1.88
	Female	15.16		
Partners	Male	15.00	48	−.39
	Female	16.50		
Egoistic demanding				
Target	Male	2.94	38	1.84
	Female	1.36		
Responsible suggesting				
Target	Male	2.49	32	−3.22**
	Female	5.76		
Await turn in line				
Target	Male	.85	29	−1.99*
	Female	3.00		
Novel play				
Target	Male	17.64	50	−2.20*
	Female	27.78		
		Activity level		
Trailer	Male	2.98[c]	50	1.99*
	Female	2.60		
Outdoor	Male	2.86	46	.58
	Female	2.75		
Indoor	Male	2.16	45	1.53
	Female	2.02		

[a] Represents frequency (percentage) of behavior in observation period.
[b] Based on separate variance estimates when necessary.
[c] This column represents rating on 1–7 activity level scale.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3
Correlations of Activity Levels and Energetic Behaviors for Sexes Combined and Alone

	Activity		Energetic behaviors			
Activity	Indoor	Outdoor	Rough and tumble	Playful assaults	Wrestling	Jumping
Trailer						
Both sexes	.39**	.45***	.63***	.51***	.48***	.33**
Males	.37*	.48**	.58***	.51**	.39*	.32
Females	.35	.40	.68***	.30	.67***	.66***
Indoor						
Both sexes		.25	.40**	.34**	.30*	.16
Males		.26	.52***	.39*	.38*	.26
Females		.20	−.15	−.02	−.17	.22
Outdoor						
Both sexes			.35**	.22	.29*	.00
Males			.41**	.24	.34	.02
Females			.20	.16	.17	.02

* $p < .05$. ** $p < .01$. *** $p < .001$.

and playful assault scores. The incorporation of these scores into a single unit was based on the fact that they both involved bodily contact and can be considered alternate forms of expression. Note the low frequency and subsequent lack of sex differences in aggressive assaulting. In over 30 hours of total child observation in the trailer, only five instances of clearly aggressive actions were recorded. Aggressive actions were distinguished from playful ones on the basis of their perceived intent to inflict injury, as well as the recipient's perception of the intent. This judgement was based on the facial qualities of both children (as suggested by Blurton-Jones, 1972) and their verbalizations (see Table 1 for elaboration).

Jumping, the final high-energy behavior, was exhibited more often by girls, although the tendency did not reach the .05 level. Female targets, however, were significantly more likely to play with the toys in novel (i.e., nonviolent) ways, suggest responsible rules, and await their turns with the toys in an orderly fashion. Although this latter behavior did not occur very frequently in either sex, it refers to self-generated queuing in front of the Bobo doll or trampoline.

With respect to activity level, information is provided from the indoor and outdoor free-play periods as well as the trailer session. No sex differences in activity level were demonstrated in either nursery setting. In the trailer, males tended to be somewhat more active, but this difference was of only borderline significance. Activity ratings from both indoor and outdoor free-play settings were significantly and positively correlated with trailer ratings for the sexes combined, indicating internal validity of the 7-point rating scale. When analysis is performed on the sexes separately, indoor activity is significantly predictive of trailer activity, as well as other active trailer behaviors, for males alone. This finding may suggest that females are more influenced by situational constraints imposed by classroom structure and that their individual differences are more likely to become obscured. Correlations of the three activity ratings with energetic behaviors in the trailer are presented in Table 3.

The report of significant sex differences alone often obscures important aspects of behavioral distribution between the sexes. Figures 1 and 2 show distributions of trailer activity level and R&T, respectively, by sex. Both of these behaviors demonstrated a significance level of at least .05, but it can be argued that the data presented in Figure 2 depict a more "meaningful" difference. Figure 1 shows overlapping distributions of activity level with a difference in means of .38, roughly half of a standard deviation. In Figure 2, there is a mean difference in R&T frequency of 9.7%, or just over three-quarters of a standard deviation. More importantly, it becomes apparent that male and female

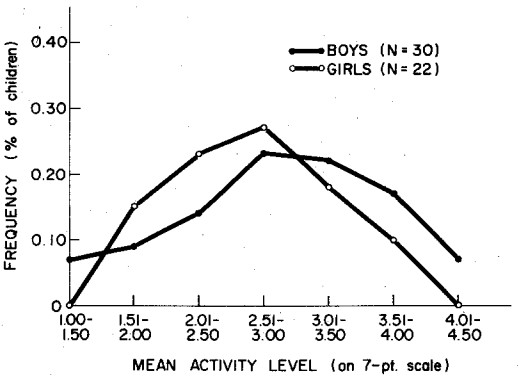

Figure 1. Activity level in triadic play by sex.

targets displayed identical amounts of R&T in the lowest frequency ranges, although there were differences in the number of boys and girls who did not R&T at all. Further, there is no overlap between the sexes in the display of R&T in the upper frequency ranges. Similar distributions were evidenced for many of the other behaviors that demonstrated a sex difference, but space limits their presentation.

Within the group of behaviors involved in verbal dominance assertion, rates of suggesting and demanding were positively correlated for girls, $r(20) = .51, p < .01$, but not for boys. For both males and females, attempts to take a toy from another child was correlated with demanding egoistically, $r(28) = .51$, $p < .004$, and $r(20) = .58$, $p < .005$, respectively, but not with suggesting. No significant correlations of any of these behaviors were found with any high-energy behavior, with the exception of R&T and take for males alone, $r(28) = .49$, $p < .005$.

Discussion

The results of this study support the general proposition that given identical environmental situations, girls and boys will react in qualitatively different patterns of play and social interaction. Male sessions were more often characterized by a good deal of exuberant physical contact with one another and with the stimulus toys. The dynamics of the interaction were less likely to involve verbal structuring and were more prone to unrestrained roughhousing. Girls more often attempted to structure the session through self-generated rules and suggestions, and their play was likely to center around novel interactions with the toys. Contact with one another tended to be verbal and not physical for the girls.

Although a small quantitative difference in activity level was demonstrated, it appears to be a by-product of a specific behavioral quality—the increased propensity of males to engage in R&T play. This conclusion is based on the null findings on activity level in both nursery school settings and on the fact that when it comes to other energetic behaviors like jumping on the trampoline, girls jumped as frequently and vigorously as boys. Recent work by Tauber (Note 3) has also failed to find a sex difference in activity level when intrinsic interest in available play options is controlled.

Since activity in both nursery settings correlated strongly with R&T for males but not females, this suggests that our trailer situation elicits a kind of play in males that is similar to their free-play activities. As mentioned, males seem to stimulate activity in other males across a variety of species and age groups. However, this observation does not quite account for our findings, since even in nursery school play tends to be sex-segregated (Serbin, Tonick, & Sternglanz, 1977), and there we observed no difference. It appears to be critical that the mobile playroom was designed to elicit roughhousing

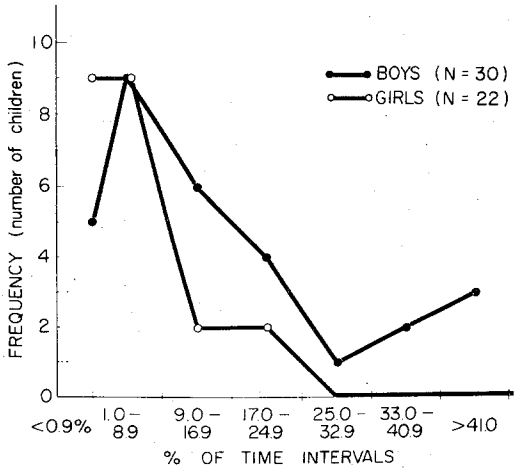

Figure 2. Rough and tumble in triadic play by sex.

and that this body contact play is more likely to be witnessed in male groups. The highly active boy on the playground is the more active in the trailer, since it was designed, so to speak, with him in mind. Girls' activity levels in nursery school situations, however, are not so clearly reflected, since the most active girl in the playroom was playing in ways that are qualitatively different from typical female patterns in nursery school.

Turning next to the complex issue of the relationship between R&T and aggression, the perspective that R&T is conducive to social development is compatible with work by Emmerich (1964) and Yarrow and Waxler (1976), who have reported prosocial correlates of aggression in young children. R&T is an activity done with consenting, or at least tolerant, partners, and it necessitates a good deal of cooperation. Children, particularly same-sex partners, seem to have no trouble discriminating mock fighting from more threatening exchanges. A problem arises when adult observers misinterpret children's interactions by attending to the behavior alone and not the context in which it is performed. Thus, the high interjudge validities often reported in studies of childhood aggression may be illusory correlations. If R&T is considered to be prosocial interaction, this may partially account for the fact that the search for cross-situational and developmental predictors of aggression has been a frustrating endeavor.

Other investigators have also reported that individual differences in aggressiveness do not predict R&T (Blurton-Jones, 1972) or agonistic dominance (Strayer, 1977) within individuals. However, the relationship between these factors may emerge indirectly. First, there is a greater chance of accidental injury in a R&T interaction to the physically smaller of the contenders, which may have repercussions for subsequent dominance hierarchy formation. Also, given the highly aroused state involved in R&T play, accidental mishaps may precede rapid escalations to angry physical retaliation. From a developmental perspective, R&T provides experience in the outcomes—physical, instrumental, and affective—of a turbulent physical exchange. Since young males engage in these behaviors more often, they may have more experiential access to information concerning social interactions that may become seriously aggressive in subsequent years. Further, they may also acquire increased sensitivity to the salience of threatening aspects of environmental stimuli. These factors in turn may contribute to the consistent and cross-cultural sex differences in adult aggression.

Studies with rhesus monkeys have demonstrated that juvenile males are more likely to initiate R&T play than females, and they direct their initiations mainly toward other males. Further, males are more likely to respond to another male's play bid than to a female's. Females, however, do not discriminate either their play initiations or responses to either sex (Suomi, 1977). With respect to human children in the present study, although there are large individual differences within sexes, and some groups of girls played as roughly as some male groups, it must be stressed that to have a successful R&T interaction there must be two consenting partners. It is suggested that an interaction of social and biological factors act to sensitize males to differential emission rates of interpersonal signals and possibly differential readiness to respond to these cues in certain ways. That is, males may not only emit more cues that are invitations to roughhouse but may be more likely to respond to such signals as playful instigations, whereas females might perceive the identical cue as threatening. For example, the positive relationship between attempts to take a toy from another child and R&T play for males alone may suggest that this behavior can serve as a physical instigation to roughhouse. In female groups, where no such relationship was observed, taking may be more accurately regarded as a potentially threatening dominance bid than as an invitation to social interaction. The concept of behavioral compatibility as an instrument for maintaining sex segregation even in preschool children may be regarded as a function of this signal–response "meshing."

Reference Notes

1. Hamburg, D. A., & van Lawick-Goodall, J. *Factors mediating development of aggressive behavior in*

chimpanzees and humans. Unpublished manuscript, Stanford University School of Medicine, 1977.

2. Yarrow, L. J., Rubenstein, J. F., & Pedersen, F. A. *Dimensions of early stimulation: Differential effects on infant development*. Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, Minnesota, April 1971.
3. Tauber, M. *Girls' physically active play and parental behavior*. Paper presented at the meeting of the Society for Research in Child Development, San Francisco, March 1979.

References

Blurton-Jones, N. Categories of child–child interaction. In N. B. Jones (Ed.), *Ethological studies of child behavior*. London, England: Cambridge University Press, 1972.

Clarke-Stewart, A. Interactions between mothers and their young children: Characteristics and consequences. *Monographs of the Society for Research in Child Development*, 1973, *38*(6–7, Serial No. 153).

Dolhinow, P., & Bishop, N. The development of motor skills and social relationships among primates through play. In P. Dolhinow (Ed.), *Primate patterns*. New York: Holt, Rinehart & Winston, 1972.

Emmerich, W. Continuity and stability in early social development. *Child Development*, 1964, *35*, 311–332.

Halverson, C. F., & Waldrop, M. F. The relations of mechanically recorded activity level to varieties of preschool play behavior. *Child Development*, 1973, *44*, 678–681.

Harlow, H. F., & Harlow, M. K. The affectional systems. In A. M. Schrier, H. F. Harlow, & F. Stollitz (Eds.), *The behavior of non-human primates* (Vol. 2). New York: Academic Press, 1965.

Hartup, W. W. Aggression in childhood: Developmental perspectives. *American Psychologist*, 1974, *29*, 336–341.

Jacklin, C. N., & Maccoby, E. E. Social behavior at 33 months in same sex and mixed sex dyads. *Child Development*, 1978, *49*, 552–569.

Langlois, J. H., Gottfried, N. W., & Seay, B. The influence of sex of peer on the social behavior of preschool children. *Developmental Psychology*, 1973, *8*, 93–98.

Maccoby, E. E., & Jacklin, C. N. *The psychology of sex differences*. Stanford, Calif.: Stanford University Press, 1974.

Mitchell, G., & Brandt, E. M. Behavioral differences related to experience of mother and sex of infant in the rhesus monkey. *Developmental Psychology*, 1970, *3*, 149.

Patterson, G. R., Littman, R. A., & Brickner, W. Assertive behavior in children: A step toward a theory of aggression. *Monographs of the Society for Research in Child Development*, 1967, *32*(5, Serial No. 113).

Serbin, L. A., Tonick, I. J., & Sternglanz, S. H. Shaping cooperative cross-sex play. *Child Development*, 1977, *48*, 924–929.

Smith, C., & Lloyd, B. Maternal behavior and perceived sex of infant: Revisited. *Child Development*, 1978, *49*, 1263–1265.

Strayer, J. Social conflict and peer-group status. In F. F. Strayer (Ed.), *Ethological perspectives on preschool social organization*. Memo de recherche Department of Psychology, University of Quebec, Canada, April 1977.

Suomi, S. J. Development of attachment and other social behaviors in rhesus monkeys. In T. Alloway, P. Pliner, & L. Kranes (Eds.), *Attachment behavior* (Vol. 3). New York: Plenum Press, 1977.

Whiting, B., & Edwards, C. A cross-cultural analysis of sex differences in the behavior of children aged three through eleven. *Journal of Social Psychology*, 1973, *91*, 177–188.

Yarrow, L. J., & Waxler, C. Z. Dimensions and correlations of prosocial behavior in young children. *Child Development*, 1976, *47*, 118–125.

Received February 6, 1980 ■