

Profiles of Peer Competence in the Preschool: Interrelations Between Measures, Influence of Social Ecology, and Relation to Attachment History

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Forty 4- to 5-year-old first-born children in two preschool groups, differing markedly in terms of classroom ecology (class size, number of children with behavior problems), were observed throughout a school year. Peer competence was assessed via (a) teacher rankings of social competence, (b) peer sociometrics, and behavioral measures of (c) social participation, (d) attention structure and (e) social dominance. Also, rates of positive and negative affect, affiliation, leadership, assertiveness, and aggression were recorded in two different settings. Individual rates of affective expression and social behavior were temporally stable and consistent across contexts for both classes. However, patterns of intercorrelations revealed substantial differences between the behavioral ecologies of the two classes. Teacher judgements and peer sociometrics were most robust with respect to these ecological influences and most consistently related to external criteria. Finally, two dimensions of peer competence were evident: (a) an affiliative dimension characterized by emotional warmth, social maturity, and peer popularity and (b) a power dimension involving positive and negative affect and high peer status. Children with secure attachment histories were higher on the affiliative dimension, whereas anxious-resistant children were lowest in peer status. These results were especially evident for girls.

Two substantive tasks are addressed in this article. The first involves defining and examining the construct of social competence in the preschool peer group and the second involves the relationship between social competence and earlier infant-caregiver attachment. The two tasks are complementary. One can assert a relationship between attachment and later peer competence only when assessments of the latter are satisfactorily validated. Reciprocally, the validation of any construct hinges in part on its external correlates, including meaningful developmental antecedents (Waters & Sroufe, 1983).

The construct of peer competence was approached by assessing a broad range of measures in (a) two preschool classes, differing notably in ecological features (class size and proportion of children with expected behavior problems) and (b) across contexts in each

classroom, varying in number of children present, available space, and dominant activity. The measures ranged from extensively sampled discrete behaviors to more molar units of behavior and to global rankings. They included assessments of affect, popularity, and numerous aspects of social behavior. Independent sources of data included the children, their teachers, and several teams of independent coders. For the behavioral measures, extensive sampling was used to insure reliability. The five central measures—teacher rankings on social competence, sociometric status, attention structure, dominance rank, and social participation—have all been used extensively in previous research (e.g., Abramovitch & Grusec, 1978; Asher & Hymel, 1981; Hartup, 1983; LaFreniere & Charlesworth, 1983; Vaughn & Waters, 1980, 1981). Key questions concerned the stability of these measures across time and contexts, in particular, the patterning of intercorrelations among these and the more molecular measures of affect, affiliation, assertiveness, and aggression in the two classrooms. That is, we sought to

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determine the robustness and coherence of various assessments of competence in markedly different classroom ecologies.

With respect to infant-caregiver attachment and social competence, there are two ways in which a tie may be conceptualized from the developmental/ethological perspective on attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969; Sroufe, 1979). First, secure attachment, as a flexible organization of behavior with reference to the caregiver, may be viewed as a positive pattern of adaptation with respect to issues of the infant developmental period. On this basis, one might predict effective peer relations in the preschool, when engaging peers becomes a central adaptational issue. Second, the link to peer relations may be proposed from a consideration of the exploratory skills, orientations, and interpersonal expectations promoted by various patterns of attachment. Securely attached infants are active in exploring the environment, derive reassurance from proximity or contact with the caregiver, and engage in coordinated reciprocal interaction with the caregiver to alleviate distress. They would be expected to transfer acquired personal and interpersonal competencies and positive expectations to a new social environment composed largely of agemates, where earlier issues of security and exploration are confronted again and new challenges of initiative are faced (Erikson, 1963). In general, one would expect such children to move forward confidently and to exhibit both social and instrumental competence.

Children who have had an anxious-avoidant attachment history (in Ainsworth's scheme, Type A) commonly have experienced a history of rejection or emotional unavailability on the part of the caregiver (Ainsworth et al., 1978; Egeland & Sroufe, 1981). From Bowlby's concept of internalized models of self and other or from the perspective that one learns both sides of a relationship (Sroufe & Fleeson, in press), as preschoolers these children would be expected to be interpersonally distant or hostile, and indeed, as toddlers they often showed both distance from and aggression toward their caregivers (Matas, Arend, & Sroufe, 1978). They did not show impoverished exploration, however, and their skill with object play and assertive-

ness in confronting the environment as preschoolers would be expected to be normal.

Children who have a history of anxious-resistant attachment (Type C attachment) would be expected to be strikingly inept with peers. As infants and toddlers they were wary, easily upset, and difficult to settle. They showed a poverty of exploration and at times they showed explicitly angry, tantruming behavior, all presumably based on a history of inconsistent or chaotic care (Ainsworth et al., 1978). C's might be expected, because of a low sense of self-efficacy, lack of object skills, and social hesitancy, to become low-status, peripheral members of their peer group. Some C's may exhibit extreme passivity and an infantile dependence on adults; others may be more forward with their peers but easily overaroused and prone to disorganization in the face of frustration or stress (Sroufe & Waters, 1977; Sroufe, 1983).

There have been studies of the relationship between secure/anxious attachment and peer competence previously (Arend, Gove, & Sroufe, 1979; Lieberman, 1976; Pastor, 1981; Waters, Wippman, & Sroufe, 1979). However, none of these studies related attachment assessments in infancy to a broad array of assessments in the preschool classroom. They used single, broad assessments, examined only initial contact with peers, and/or measured attachment and competence at the same age. Pastor (1981), for example, found that C's were less skilled with peers, whereas A's elicited more aggression from their partners. But these results were based on brief, initial encounters with peers at 2 years of age. Their generalization to more prolonged contacts at a later stage in social development remains to be determined.

Based on both past research and theoretical expectations, in this study children with histories of secure attachment were expected to be high on measures of rated social competence, sociometric status, and attention structure. Children with histories of anxious-resistant attachment were predicted to be especially low on positive affect, social participation, social dominance, leadership, assertiveness, and affiliation. In contrast, children with histories of anxious-avoidant attachment were expected to be distinguished by high negative affect and aggression.

Table 1
Composition of the Two Preschool Classes in Terms of Sex and Attachment Classification

Sex	Anxious-Avoidant (A)	Secure (B)	Anxious-Resistant (C)	Mixed (M)	Total
First class					
Girls	0	4	0	2	6
Boys	3	3	1	2	9
Total	3	7	1	4	15
Second class					
Girls	4	4	4	0	12
Boys	4	4 (1)	4	0	12 (1)
Total	8	8 (1)	8	0	24 (1)

Method

Subjects

Forty children in two separate preschool classes were observed consecutively over the course of a school year. The first class ($n = 15$) was observed for a 12-week period in the fall term, and the second class ($n = 24$ plus one replacement) was observed over a 20-week period during the winter and spring terms. Subjects were all first-born children selected from a larger sample on the basis of their maternal attachment history during infancy, in order to examine the coherence of earlier and later patterns of adaptation. Subjects were from predominantly urban working-class families and lower class families, many of whom had histories of instability and stress.

In the first class there were 6 girls and 9 boys ranging in age from 47 months to 57 months at the start of the fall term. Seven of the children had shown secure (B) attachments with their mother at 12 and 18 months, two had been assessed as anxious-avoidant (A), one child was assessed as A and subsequently as anxious-resistant (C), and another child was assessed as C and then later as A. Four children were "mixed," that is, not classified consistently as secure or anxious.

The second class was originally composed of 12 boys and 12 girls equally divided among secure (B), anxious-avoidant (A), and anxious-resistant (C) attachment classifications. The mean age of the children was 48.7 months at the start of the class ($SD = 3.9$ months), with no differences in mean age among the attachment groups. Twenty-one of the children had shown stable attachments from 12 to 18 months. In the three cases where attachment changed ($A > C$, $B > C$, and $C > A$) the final assessment was used, because each of these children also fell into cluster groups at 24 months consistent with the 18-month classification. One male C child moved after the 10th week of class and was replaced by a B male, because no more stable C males were available. Thus, in addition to the ecological factors to be presented below, the two classes differed markedly in the number of children with histories of anxious attachment who might be expected to exhibit maladaptation (see Table 1).

Classroom Ecology

In order to resolve transportation difficulties and to insure regular attendance, a van and, in the second class, a car and a van were used to transport the children to the laboratory nursery. In both classes, half the children arrived and departed about 1 hour after the first half. These early- and late-arriving transport groups were matched on attachment and sex in both classes. Hereafter, when early- and late-arriving groups are both present, we will employ the term *large group*; when only the early- or late-arriving group is present, we will use the term *small group*.

Most of the children's activity during observation periods was self-paced, though occasionally activities were directed by the teachers. The children's teachers included two full-time teachers, one full-time assistant and three part-time assistants, insuring a ratio of at least one teacher per six children throughout the day. Observations were conducted during periods of free play in the classroom, gym, and on the playground. The small groups frequently played outside, whereas the free-play period for the combined early- and late-arriving groups was always in the classroom. The classroom was organized into a variety of relatively discrete play areas, including a loft that frequently served as the site of sociodramatic play episodes. The gym and outdoor playground were spacious and equipped with a wide variety of standard children's toys.

Observation

The observations were carried out by the first author and a team of eight trained observers, several of whom had at least 1 year of experience observing the social behavior of preschool children. Periods of retraining and reliability testing were scheduled at different points throughout the 9 months of data collection. The children were observed from a screened observation booth when in the classroom, and as unobtrusively as possible while in the gym or on the playground. Three observation sessions of a maximum of 30 min each were conducted

during periods of free play during each day that the class was in session.

Attention. The most discrete form of data consisted of focal child-time samples of visual regard (Vaughn & Waters, 1981, p. 278). Observers used an electronic beeper to sample alternate 10-s intervals. Subjects were sampled in fixed rotation, determined randomly at the start of the session. Observations were conducted on a daily basis for the two classes, both while playing with their small groups and within the entire class, with the stipulation that at least 75% of the small or large group, respectively, was present. These data were kept separate for all subsequent analyses. A minimum of one hundred samples of each child in each of the small and large groups were collected.

An individual's rank in the attention structure was determined by dividing the absolute number of looks received by the number of observational rounds during which the child was present. Each child's received attention score was based on a sampling of approximately 1,400 10-s intervals evenly spaced throughout free-play periods over 12 weeks for the first class and 2,300 samples over 20 weeks for the second class. Observer agreement (number of agreements divided by the number of agreements plus number of errors) calculated on 912 10-s samples was 90%.

Social exchanges. Teams of three observers were responsible for an event sampling (Altmann, 1974) of social behaviors during the same periods of free play. To this end, each of the three settings (gym, playground, classroom) was subdivided into three "zones," with one observer assigned to each. Within each zone an observer recorded all (or almost all) occurrences on a select list of social exchanges using a six-item code identifying the initiator of the exchange, the initial behavior, the accompanying affect, the recipient, the recipient's response, and the affective quality of the response. (See Appendix for the behavior and response categories.)

The first class was observed for a total of 30.33 hr during the fall term, broken down as follows: 670 min for the early-arriving group; 442 min for the late-arriving group, and 708 min when both groups were present. The second class was observed for a total of 78.23 hr during the winter and spring terms, broken down as follows: 1,162 min for the early-arriving group; 1,222 min for the late-arriving group, and 2,310 min when both groups were present.

Observer agreement (number of agreements divided by number of agreements plus number of errors of commission) using the zone-event sampling technique was calculated on 320 min of observation and averaged 81% across all behavior categories. In order to be considered an agreement, observers must have agreed on both the behavior and the subsequent response; agreement on affective expression was calculated separately.

Dominance. Dominance was conceptualized at the level of relationships (Strayer & Strayer, 1976) and operationalized in terms of both verbal and nonverbal interactions leading to asymmetric outcomes. Nonverbal indicators included (a) attacks and threats leading to submission; (b) object, position, and other physical struggles in which there was a clear winner; (c) taking an object or position from another without a struggle.¹ Verbal indicators included (a) positive and negative commands leading to compliance, (b) verbal struggles that are clearly

won by one of the participants, and (c) verbal threats leading to submission (LaFreniere & Charlesworth, 1983). An additional category, directs behavior, was developed during the study, defined as organizing or directing the activity of a peer by making suggestions, demonstrating an activity, leading by the hand, or appointing children to various roles.

Verbal and nonverbal asymmetric exchanges were organized in a matrix maximizing the transitivity of relationships extant within a group. A relationship was considered asymmetric (dominant-subordinate) if one child was dominant in at least two thirds of all assertive and aggressive exchanges involving asymmetric outcomes and had at least two excess "wins." Episodes in which the teacher intervened before there was a clear outcome were not considered in this analysis.

Affective expression. Affect expressed within peer interaction was classified broadly according to positive, negative, or neutral hedonic tone based primarily on facial expression and tone of voice. Positive affect was coded when the behavior or response was accompanied by broad smiling, giggling, or laughter. Negative affect was defined as displeasure, frustration, or anger expressed through crying, stamping feet, harsh commands, or unrestrained attacks. Observers were instructed not to code any exchanges in which the affective tone was neutral, mild, or unclear. Thus, only exchanges that were charged with unqualified expressions of emotion were coded as positive or negative.

Observer agreement was calculated separately for individual affective expression. Although there were errors of omission (31%) in the coding of affect, there were no errors of commission; that is, positive and negative affect were never confused.

Social participation. Teams of three observers were also responsible for collecting scan-samples (Altmann, 1974) of social participation. At the conclusion of each 2-min interval of event sampling, each of the three observers simultaneously scan-sampled all the children in their zone, identifying play groups and isolates, and categorizing the children's activity using a modification of Parten's (1932) social participation scale. This scan sample took 10-20 s to complete depending on the number of children occupying the zone during the scan. For the purposes of the present study, behavioral categories

¹ This latter category (physical assertiveness) was added to the traditional categories of physical dominance indicators for several reasons. First, it was assumed that taking an object or position without a struggle indicated that a dominant-subordinate relationship was already established, such acts no longer being contested by the subordinate. Second, when analyzed separately, these data can be organized in a linear, transitive hierarchy that correlates significantly (.66, .60) with a hierarchy derived solely from the first two indicators. Finally, rank orders derived from a matrix analysis of dominant-subordinate interaction are sensitive to fluctuation in the absence of large quantities of data. The inclusion of a category of behavior that was correlated with traditional dominance indicators and occurred relatively frequently was thought to be likely to enhance the reliability of assessments of individual differences in social dominance (LaFreniere & McHenry, 1981).

were combined into the general categories of interactive, parallel, and solitary play. Observer agreement calculated on 543 samples was 84%.

All interactive forms of play behavior (i.e., goal-directed play, turn-taking, sociodramatic play, and associative play) were organized into a matrix. Rank in the matrix was determined by the proportion of time an individual spent in interactive play weighted by the number of partners in the play group. This score was labeled "social participation."

Teacher evaluations. Supplementing the behavioral data were teacher rankings of social competence collected after the final session for each of the two classes. The three full-time teachers independently rank ordered the children in terms of competence after reading a brief description of the construct supplied by the investigators. All ratings were made independently and subsequently composited to minimize the possibility of biased or idiosyncratic data.

Peer sociometrics. Near the end of the fall and winter/spring classes, each child was administered a picture sociometric interview.² These interviews lasted approximately 10 min and were conducted by the first author (who was known by all the children) in a setting familiar to them. Follow-up interviews were administered 2 weeks later, providing test-retest reliability coefficients for sociometric status.

Throughout the 9 months of data collection, all observers (including the first author) and all teachers remained blind to the attachment histories of the children.

Results

The results section is organized with respect to the following topics: (a) stability and consistency of affective expression, social behavior, and social organization; (b) convergent and discriminant validity of peer competence; and (c) relations between maternal attachment and peer competence.

Stability and Consistency of Affect, Social Behavior, and Social Organization

Extensive, daily observation of both classes yielded measures of individual differences in behavior and affective expression that were stable over time and across situations. Temporal stability was assessed via split-half reliability coefficients. Mean rates of initiated behaviors of each child for each half term were computed, and Pearson product-moment correlations were then calculated on the resulting pairs of scores. Stability estimates were obtained for behavior during small-group play (typically outdoors) and for large-group play (always indoors) for both preschool classes. In addition, estimates of situational consistency were likewise calculated on behavior rates for small/outdoor versus large/

indoor group play. These results are reported in Table 2.

In all cases, the frequency of behavior and the stability estimates were lower for data on small-group behavior, where each child was observed, on average, for less time (555 min and 832 min) than the large group (708 min and 1510 min) in both classes. For the same reason, stability estimates were somewhat lower for the first class than the second class. Individual rates of behavior during small-group play were moderate to highly stable (.39 to .73), with the exception of physical assertiveness (.22, .19); rates for large-group behavior were highly stable (.48 to .78), and all were significant ($p < .05$).

Consistency of behavior across settings was limited by the lower stability estimates within the small-group setting. Physical assertiveness was extremely inconsistent (-.02, -.11), whereas aggression was highly consistent for the second class (.89); all other categories were moderately consistent across contexts in both classes (.40 to .61).

Positive and negative affect were moderately stable in small groups (.31 to .56) and somewhat more stable in large groups (.52 to .71) where there was somewhat greater opportunity to observe the children. Estimates of cross-situation consistency were high in the first (12-week) class (.69, .56) and very high in the 20-week second class (.76, .83).

Among the broad-band assessments, attention scores were highly stable (especially in the large group—.81, .73) for the two classes but were not as consistent across the settings (.51, .48). Dominance rank was moderate to highly stable (.62 to .88) and consistent (.51,

² In large preschool groups ($n = 15$), we have followed the practice of using conditionally weighted positive nominations and unweighted negative nominations. Each child begins the interview by naming all of the children's photographs and then makes as many positive nominations as he or she wishes. After making a maximum of three negative nominations, the child once again orders the subset of positive nominations. Positive choices are weighted 3, 2, 1 in order of preferences for each of the two orderings. If the choices are reordered in the same position, the resulting point totals are 6, 4, 2. If the reordering is inconsistent, the point totals are the sum of the two different weights. The net result is that consistent orders of preference are weighted, whereas completely inconsistent orders are unweighted, though each child contributes the same number of points (12) to the sociometric.

Table 2
Stability and Consistency of Social Behavior and Affective Expression During Free Play in Small/Outdoor and Large/Indoor Groups

Category	Behavior	Observer agreement (%)	Frequency				Stability ^b				Consistency ^b	
			1st class		2nd class		1st class		2nd class		1st class	2nd class
			Small	Large	Small	Large	Small	Large	Small	Large	Small-Large	Small-Large
Affiliation Leadership ^a	Greet, invite Organize or direct behavior	83 78	244 54	413 104	285 413	253 570	.41 —	.49* —	.48* .61*	.61** .70**	.42 .53*	.40* .48*
Verbal assertiveness	Positive or negative command	82	401	571	739	835	.60*	.67**	.73**	.78**	.56*	.61**
Physical assertiveness	Take position, take object	80	99	296	120	471	.22	.48*	.19	.54**	-.02	-.11
Aggression	Threaten, attack, struggle	85	56	120	126	196	.39	.58*	.59*	.76**	.43	.89**
Positive affect	Broad smiling, laughter	100	145	260	184	357	.39	.60*	.49*	.67**	.69**	.76**
Negative affect	Cry, tantrum, scream	100	92	132	162	317	.31	.52*	.56**	.71**	.56**	.83**

^a This category was introduced in the first class and was not formally defined and coded until midway in the term.
^b Pearson product-moment correlations.

.89), as were social participation scores (.56 to .76 for stability and .44, .62 for consistency; See Table 3). Test-retest reliabilities of sociometric status were highly reliable for both classes (.65 to .79) and significant ($p < .01$). Inter-teacher agreement on the social competence rankings averaged .902 (Spearman's rho).

Convergent and Discriminant Validity of Peer Competence

The interrelationships between the proposed broadband assessments of peer competence (social competence, sociometric status, social participation, attention structure, social dominance) and the more discrete measures of affect and social behavior are useful in establishing both discriminant and convergent validity among competence measures. Convergent validity is partly established by the uniformly positive intercorrelations between all five broad-band assessments. As Table 4 shows, 15 out of 20 are significant. However, partial correlations, controlling for overall rate of social activity, reveal that dominance is no longer consistently related to the other four measures. Moreover, dominant peers were popular in one class (.44) but not in the other (-.16), revealing interclass differences in behavioral ecology and social organization. This sensitivity to the particular organization of the peer group was also evident in the measure of attention structure, which was correlated with teacher rankings of social competence in the first class (.50) but not in the second (.13). Nevertheless, widely divergent assessment procedures yielded substantial convergence between the four measures—social competence, sociometric status, social participation, and received visual attention from peers—when controlling for activity level (See Table 4).

Table 5 displays correlations between broad-band assessments and the more narrow-band rate measures of affect and social behavior, again controlling for overall rate of social activity. Some convergence across the five measures is provided by the consistent pattern of positive correlations with positive affect and leadership. However, negative affect expressed toward peers, aggressive behavior, and to a lesser extent, assertive behavior, sharply discriminate social dominance from

Table 3
Stability and Consistency of Attention, Dominance, and Social Participation

Behavioral measure	Stability				Consistency	
	1st class		2nd class		1st class	2nd class
	Small	Large	Small	Large	S/L	S/L
Attention structure ^a	.51*	.81**	.67*	.73**	.51*	.48*
Social dominance ^b	.62**	.74**	.88**	.69**	.51*	.89**
Social participation ^a	.56*	.76**	.71**	.71**	.44*	.62**

^a Pearson product-moment correlations.

^b Spearman rank-order correlations.

the cluster of social competence, sociometric status, and social participation. It is clear from this pattern of correlations that these broad-band measures are not tapping a single underlying construct. Unlike dominance, which has zero or slight positive correlations with negative affect or aggression (.25, .07 and .20, .00), social competence, sociometric status, and social participation show a pattern of negative correlations with negative affect (-.78, -.38; -.70, -.27; -.51, -.27) and aggression (-.63, -.40; -.44, -.36; -.34, -.35) controlling for activity level. Rates of assertive behaviors show a less consistent pattern of intercorrelations, though verbal assertiveness is positively related to social dominance in one class (.65) and physical assertiveness is negatively related to sociometric status in both classes.

The correlates of attention structure are dramatically different between the two classes. It is interesting that the smaller class, composed of a lower proportion of children

showing disturbed behavior, received attention from peers correlates positively with leadership (.47) and positive affect (.69) and correlates negatively with aggression (-.45). However, in the second class, attention structure is unrelated to all three measures (.18, .21, -.04, respectively: See Table 5).

In sum these five broad-band assessments appear to be tapping two somewhat different dimensions of peer relations. The first dimension is negatively related to aggression, negative affect and is unrelated or negatively related to assertiveness, whereas the second dimension is more related to power and, perhaps because of this, is positively correlated with verbal assertiveness, and is unrelated to aggression and negative affect, when controlling for activity level.

Relations Between Maternal Attachment and Peer Competence

Considering the two classes as a whole, these data continue to attest to the validity

Table 4
Zero-Order and Partial^a Intercorrelations Between Broad-Band Assessments of Peer Competence

Measure	Social competence		Sociometric status		Social participation		Attention structure		Social dominance	
	1	2	1	2	1	2	1	2	1	2
Social competence	—	—	.81**	.47*	.74**	.44*	.49*	.27	.47*	.34
Sociometric status	.76**	.47*	—	—	.64**	.39*	.47*	.29	.24	.31
Social participation	.65*	.41*	.56*	.49**	—	—	.77**	.82**	.55*	.53**
Attention structure	.50*	.13	.26	.35*	.63**	.64**	—	—	.65*	.62**
Social dominance	.09	.30	-.16	.44*	.35	-.02	.35	.02	—	—

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

^a Correlations for rate of social activity, partial correlations are represented below the diagonal.

Table 5
Partial Correlations Between Broad-Band Assessments of Peer Competence and Rate of Affective Expressions and Social Behaviors

Affect and social behavior	Assessments of peer competence									
	Social competence		Sociometric status		Social participation		Attention rank		Dominance rank	
	1	2	1	2	1	2	1	2	1	2
Affect										
Positive	.57*	.80**	.30	.62**	.67**	.40*	.69**	.18	.00	.42*
Negative	-.78**	-.38*	-.70**	-.27	-.51*	-.27	-.32	.02	.25	.07
Social behaviors										
Affiliation	.19	.10	.45*	.18	.03	.00	.06	-.22	-.44	-.02
Leadership	.67**	.33	.52*	.53**	.61*	.30	.47*	.21	.30	.25
Verbal assertiveness	.13	-.26	.19	-.28	.41	-.26	.35	-.33	.65**	.09
Physical assertiveness	-.25	.00	-.54*	-.35*	-.14	.13	.07	.23	.13	-.23
Aggression	-.63*	-.40*	-.44*	-.36*	-.34	-.35*	-.45*	-.04	.20	.00

Note. Correlations control for rate of social activity.

of attachment as assessed in the strange situation as well as to the external validity of several indexes of competence. Standardized scores on the five broad-band assessments of

peer competence for the two classes combined were computed, yielding the group means shown in Figure 1. As predicted, there were overall differences between children with se-

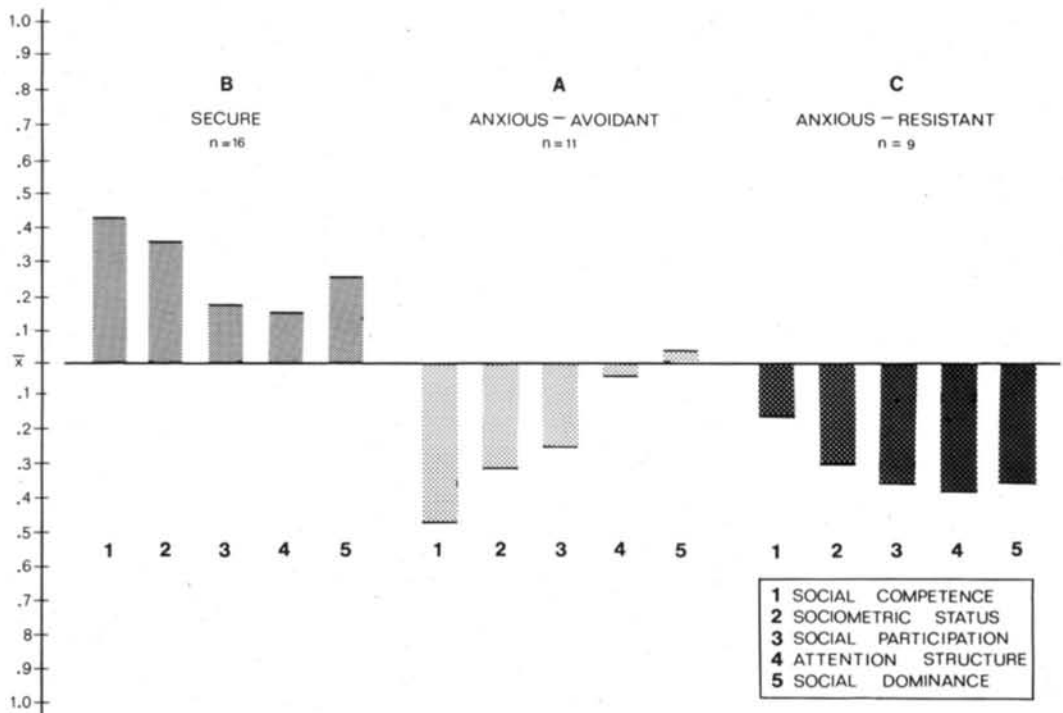


Figure 1. Profiles of peer competence as a function of attachment history.

cure attachment histories (Bs) and children with anxious attachment histories (A's and Cs) on two measures: (a) teacher-based social competence, $\chi^2(1, N = 36) = 7.56, p < .01$, and (b) sociometric status, $t(34) = 1.86, p < .05$, one-tailed. However, B children were not significantly higher than A/C children in attention structure, which also had been predicted, $t(34) = .89, p > .1$. As predicted, B children were found to be significantly lower than A children on the more specific negative affective expression measure, $t(25) = 1.97, p < .05$, one-tailed, although the hypothesized differences in rate of initiated aggression were not at all evident, $t(25) = .13, p > .1$. Finally, C children, as predicted, were found to be significantly lower in social dominance, $t(34) = 2.36, p < .05$, and social participation, $t(34) = 2.09, p < .05$, than A/B children, though no differences in rates of social behaviors or affective expression were found.

Although these a priori hypotheses were mute with respect to sex differences, inspection of the data suggested an interaction between sex and attachment for a number of outcome measures (see Figure 2). Therefore, 2 (sex: girls, boys) \times 2 (attachment: secure, anxious) ANOVAs were performed on all five broad-band measures. For two measures, significant interactions were obtained. Sex interacted with attachment for predictions of sociometric status, $F(1, 34) = 5.24, p = .029$, and teacher-based social competence, $F(1, 34) = 5.36, p = .027$. Both interaction effects were due to the significantly higher scores of securely attached girls over securely attached boys on measures of social competence, $t(14) = 2.33, p < .05$, and sociometric status, $t(14) = 2.30, p < .05$. Although, attachment did not account for much of the individual variation in outcome measures for boys, except for aggression and negative affect, it was a powerful predictor of all five broad-band assessments of peer competence, measures of positive and negative affect, and affiliation and assertiveness for girls.

Discussion

In general, the observational measures of competence-related behaviors included in this study showed stability over time and consistency across contexts. Physical assertiveness

was the only exception. The competence assessment based on peer reports (sociometric status) was reliable across two assessments, and three independent teachers agreed in their judgements of peer competence. These results provide initial support, but only the starting point, for validation of these various measures as assessments of competence.

With respect to intercorrelations across assessment procedures among measures presumed to tap the competence domain, results are somewhat more complex. Teacher judgements and peer sociometrics are in good agreement in both classes and have similar strong correlates with positive affect, negative affect, leadership, and aggression. Attention structure, however, does not show a consistent pattern of correlations. It correlates well with both teacher judgements and peer sociometrics and shares correlates with those independent assessments *only* in the first, smaller class. Social dominance is not well supported as a measure of competence by its correlates in either class. Finally, social participation is correlated with teacher judgments and peer sociometrics in both classes, but its correlates are not as strong as these other two measures. Moreover, in the second class, social participation attention structure and dominance group together as a dimension of peer behavior orthogonal to teacher and peer-based assessments. (This was supported by a factor analysis, which is not reported due to the small number of subjects involved).

Finally, among the molar assessments, teacher judgements and peer sociometrics distinguished secure from anxiously attached subjects, whereas attention rank distinguished them only in the first class. As predicted, children with histories of anxious-resistant attachment were lower on measures of dominance and social participation, whereas avoidant children were not distinguished by these measures. Taken with the results above, these findings again suggest that teacher judgements and peer sociometrics may serve as global measures of peer competence, whereas social hesitance and timidity may be signs of more particular patterns of maladaptation with peers. Social participation (or dominance) by itself is mute with respect to the quality of peer behavior, and therefore, competence in the broader sense.

One of the more important outcomes of this study with respect to measures of peer competence concerns the impact of the social ecology. The composition of the classes was different in two important ways: (a) size and (b) ratio of secure to anxiously attached

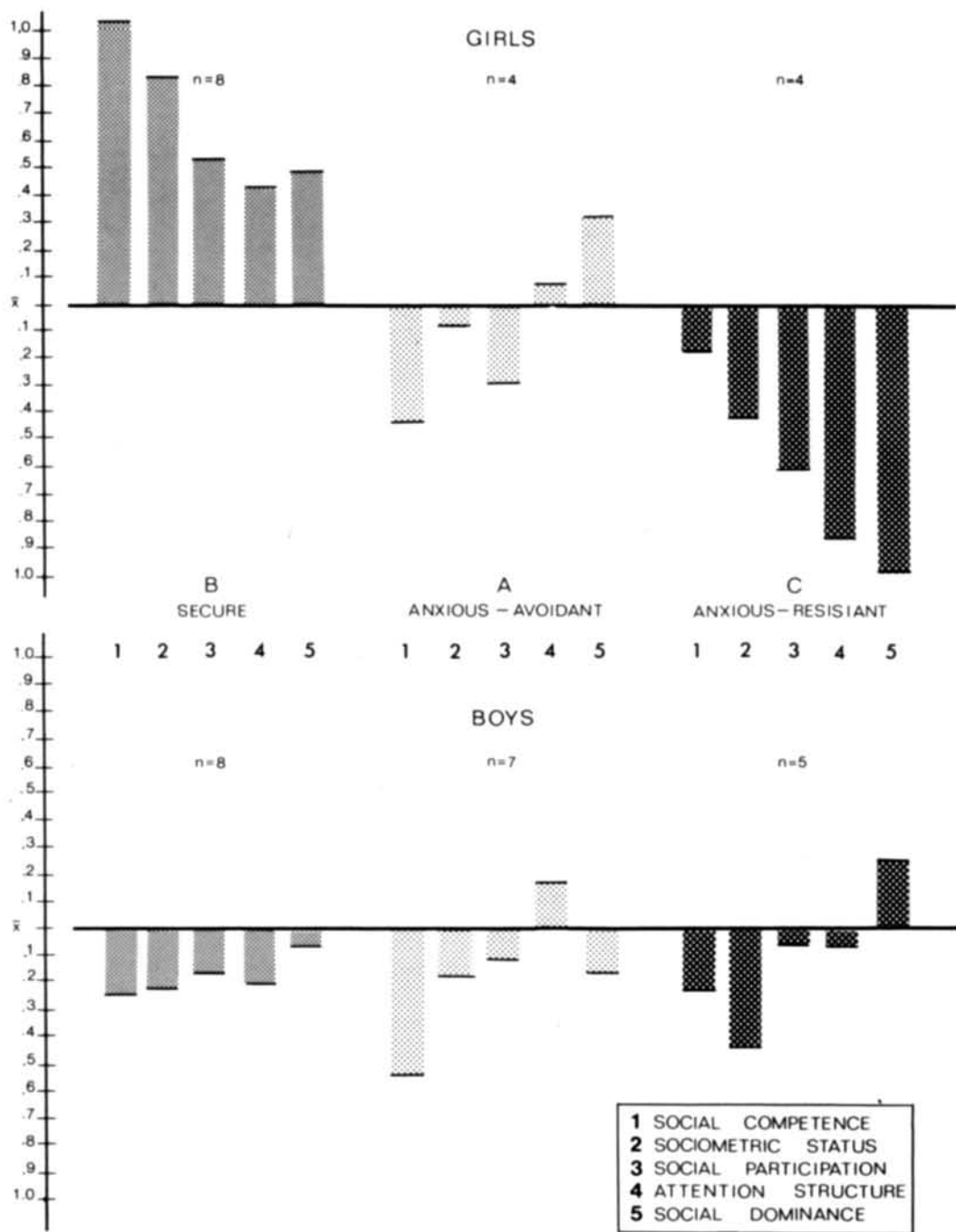


Figure 2. Profiles of peer competence as a function of attachment history and sex.

children. In the first class, only 4 of the 15 children had been consistently assessed as anxiously attached infants, compared with 16 of the original 24 in the second class. In combination, these sociodemographic differences between the two classes in the amount of social activity, noise level, and conflict that occurred during the large indoor free-play periods. These differences were apparent to both teachers and observers and presented different demands for social adaptation for children in the two classes. Although teacher ratings and peer nominations tended to be relatively invulnerable to these effects (that is, teachers and peers tended to judge securely attached children favorably, and these two measures were significantly correlated in both classes), the observational data were quite sensitive to the differences in behavioral ecology. This is most apparent in the correlates of social participation and attention rank. In the smaller class, securely attached children were high on both measures; that is, they were actively involved with peers during large-group free play ($n = 15$) and central in the emerging attention structure of the group. However, in the second class, a number of securely attached children chose to withdraw from the occasional chaos of the large-group free play ($n = 24$) and to play quietly with one or two peers. In contrast, anxiously attached children in the large free-play group tended to become aroused and were more readily swept away by a contagion of activity. When the teachers judged the level of activity in the group to be out of control, they would quell the contagion by structuring the children's activity or by dividing the class into smaller groups.

As a case example, the most popular child in the second class was a girl who had been securely attached as an infant and who was also rated highly by her teachers in social competence as a preschooler. During the large free-play session ($n = 24$), she was low in social participation and *last* in attention rank. However, during free-play sessions within the small group ($n = 12$), the same girl was high in social participation and *first* in attention rank. Results such as these are not easily interpreted as measurement error considering the stability of the girl's behavior within setting; rather, they suggest a flexible

and strategic style of adapting to salient features of the immediate social context.

In the same manner, we interpret the differences in the correlates of attention structure between the two classes as meaningful differences in behavioral ecology. In the first class, attention is positively and significantly correlated with social competence, sociometric status, positive affect and leadership and negatively related to aggression, whereas in the second class, none of these correlations are significant. Clearly, the meaning of a child's rank in the attention structure is different and cannot be interpreted without reference to the social ecology of the child's peer group. Thus, the prediction that securely attached children would be high in attention rank was not at all supported in the second class, though the expected relation was evident in the first class. Because of this sensitivity to contextual influences, attention rank is better conceptualized as a measure of adaptation to a particular group than as a measure of competence, (i.e., a quality of the child *per se*). To some extent, this critique applies to measures of social participation and dominance as well.

In summary, considerable evidence suggested two distinct dimensions of peer behavior. The first dimension may be characterized by a warm, open, flexible, and generally positive interpersonal style leading to great popularity with one's peers as well as recognition of social and emotional maturity by one's teachers. The second dimension may be characterized by an effective, assertive interpersonal style that is expressed in both positive and negative affective exchanges, leading to high status among one's peers and, to a lesser extent, a positive evaluation by one's teachers. Although these characteristics co-occur in some children, they are conceptually distinct and only modestly associated empirically.

The major hypotheses concerning the relationship between mother-infant attachment and peer competence were strongly supported for girls but only minimally supported for boys. For girls, secure mother-infant attachment was a powerful predictor of the affiliative dimension of peer behavior described above. Teachers, peers, and observers of these children offer strikingly convergent data regarding

the social competence and emotional maturity of girls who had an early history of secure attachment to their mothers. As a group, and almost without exception, the B girls were socially outgoing, engaging their peers in predominantly positive interactions and receiving a great deal of attention and esteem from their classmates in return. They were viewed by their teachers as much more socially competent than either anxiously attached girls or securely and anxiously attached boys.

Although girls who were securely attached made a successful transition to the preschool peer culture, their anxiously attached counterparts were less successful. Among these girls, distinct patterns of maladaptation were found to be associated with anxious-avoidant and anxious-resistant attachment histories. As a group, C girls were passive, withdrawn, submissive, and neglected by their peers. The A girls rivaled the B girls in assertive behavior. However, this was expressed much more negatively and, as a consequence, the A girls often were rejected by their male and female classmates. In this sample, the absence of a secure attachment to the mother was more devastating to subsequent peer relations in girls than in boys. These results do not confirm, and in some respects contradict, the suggestions of recent investigators (Baumrind, 1979; Martin, 1981) that "maternal warmth, nurturance, and responsiveness serve to encourage competence in boys, but tend to hold girls back," that instead "high personal agency in girls was associated with parental abrasiveness, coldness and argumentativeness" (Martin, p. 48). It may be that in this lower socioeconomic status sample, sufficient challenge was available in the general life circumstances, a function served by parental behavior in the middle class. Moreover, these results do confirm the expectations of these (and other) investigators that maternal responsiveness may have different consequences for girls and boys.

Two factors must be considered when evaluating the failure to find differences in peer competencies for boys differing in attachment history. First, securely attached boys in these two classrooms were found to be more "ego resilient" (teacher Q-sort) and less dependent than their anxiously attached counterparts (Sroufe, 1983). Moreover, analysis of behavior

problem checklists for these children and 56 children in other nursery schools showed anxiously attached boys (especially A's) to exhibit more hostile, antisocial behavior (Erickson, Egeland, & Sroufe, in press). Thus, the failure to find differences in adaptation may be restricted to the ability to engage the challenges of robust give-and-take common to cliques of boys in the preschool. Second, the failure to find expected differences in peer competence among boys might be interpreted in terms of Rutter's (1979) hypothesis of differential vulnerability of boys to life stress, particularly family discord. As a representative sample of the urban poor, the children in this study have grown up within an unstable, and often stressful family environment. Their mothers have had few stable partnerships; two thirds were unmarried at the time of birth and by 18 months only about one eighth were still living with the child's father. Such prevalent paternal deprivation may be expected to predispose boys more than girls toward certain developmental deficits (Billar, 1981). Though many diverse and complex factors may be associated with father absence, in general, research has shown that the more extended the absence and the younger the child, the more severe the impact, especially on the development of gender identity and positive self-regard in young boys. Researchers have found that preschoolers who experienced prolonged father absence at a young age were more anxious with peers and adults than children whose fathers had been consistently present (Stolz et al., 1954). Recent studies focusing on father absence due to divorce have found boys to be more vulnerable to both marital discord and father absence (Hetherington, Cox, & Cox, 1982; Porter and O'Leary, 1980). Finally, paternal deprivation is associated with more serious consequences among lower class children than among middle-class children (Billar, 1974).

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Appendix

Table A1
Definitions of Behavior and Response Categories

Behaviors	Code	Definition
Greet	gr	Direct verbal salutation (e.g., <i>Hi, Joey!!</i>)
Invite	iv	Specific offer to join an activity or group (e.g., <i>You can play with us; Wanna play house, Sarah?</i>)
Direct	dr	Organizing or directing the activity of a peer by making suggestion or demonstrating an activity, leading by the hand, or appointing children to various roles (e.g., <i>I'll be the mom and you can be the baby; Let's make a snowman!; This is how to do it, Jessie.</i>)
Positive command	pc	A direct imperative to a peer in order to get them to do something. (e.g., <i>Give me that!</i>)
Negative command	nc	A direct imperative to a peer in order to get them to stop doing something (e.g., <i>No!, Stop hitting, Tommy!</i>)
Takes object/ position	to	One child takes an object/position from another without a struggle (does not include mutual sharing).
Threat	thr	A physical, vocal, or gestural threat of force or some negative consequence (e.g., <i>A child grimaces and raises a clenched fist as if to strike another child</i>)
Weak attack	wa	A child hits, pushes, pulls, pinches, kicks, bites (etc.) another child in a restrained but unfriendly manner.
Strong attack	sa	A child clearly aggresses against another child in a physically unrestrained manner. Involves the same forms of behavior as a weak attack, but the difference lies in the intensity of the behavior or the negative affect that is expressed. Does not include rough and tumble play, which may be distinguished by affective cues.
Object/position struggle	os	Two children physically dispute the possession of an object, place, or position. May involve a series of exchanges, in which case only the outcome is noted. (e.g., A is playing with a pillow and B asks for it. A refuses, and B grabs the pillow and starts tugging. A cries and resists, but B pulls the pillow away and runs across the room, leaving B in tears. This sequence is coded as Os: b > a.)
Accept	ac	Positive response to a greeting or invitation
Comply	c	Obedient response to a command or directive
Submit	s	Vocalizations or gestures of submission in response to a threat or attack (e.g., A hits B, who then crouches and turns head away and does not retaliate or protest in any manner.)
Retreat	rt	A child flees from a conflict with a peer.
Leave	lv	A child walks away from a conflict with a peer without showing signs of submission. May be distinguished from rt by noting the pace as well as affective cues. (e.g., A threatens B, who then turns away and engages another peer.)
Appeal	ap	A child solicits the aid of another in response to a conflict. (e.g., A takes a toy from B, who then goes to the teacher and says, <i>He took my boat!</i>)
Protest	pt	A statement protesting a peer's behavior directed to the peer (e.g., A takes a toy from B who says, <i>Hey, You can't have that!</i>)
Resist	rs	Physical response to an assertive or aggressive behavior (e.g., A tries to take B's toy, but B shouts and pulls it back.)
Ignore	ig	B does not alter his or her ongoing behavior in response to action directed to him or her.

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