Development and Psychopathology, **11** (1999), 251–268
Copyright © 1999 Cambridge University Press
Printed in the United States of America

Attachment organizations in children with difficult life circumstances

CAROLLEE HOWES[a] AND SHARON RITCHIE[a,b]
[a]*University of California, Los Angeles; and* [b]*Saint John's Child and Family Development Center*

Abstract
The purpose of this study was to use the Attachment Q-Set to create categories of attachment organization that were conceptually consistent with organizational categories derived from other attachment assessments, reliable, and valid. We were particularly interested in creating categories that would describe insecure attachment organizations in children from difficult life circumstances. Our sample of relationships included 3062 teacher–child relationships. Children ranged in age from toddlers to kindergartners and were diverse in ethnic background. Two percent of the children were diagnosed with severe social and emotional problems and enrolled in a therapeutic preschool. Sixteen percent were enrolled in intervention programs on the basis of family poverty and another 34% of the children attended subsidized child care programs for low-income children. All of the children's child–teacher relationships were assessed with the Attachment Q-Set (AQS). Independent observers observed or rated children's peer play. Teachers completed behavior problem questionnaires and Student Teacher Relationships Scales. Using the AQS we created five subscales and six attachment organizational categories. These subscales and organizational categories were associated in theoretically meaningful ways with measures of behavior problems, social competence with peers, and teacher perceptions of child–teacher relationship.

Increasing numbers of children who live in difficult life circumstances—maltreatment, parental psychopathology or substance abuse, and poverty—are enrolled in child care and intervention programs, including Head Start. These difficult life circumstances are often associated with children who withdraw from or aggress towards adults and other children (Carlson, Cicchetti, Barnett, & Braunwald, 1989; Lyons–Ruth, 1996; O'Conner, Sigman, & Brill, 1987; Rodning, Beckwith & Howard, 1991; Spieker & Booth, 1988). These behavior patterns are challenging to teachers who may have little experience with children who do not easily adapt to classroom routines and activities.

Special thanks to the children, directors, and teachers in the participating centers.

Address correspondence and reprint requests to: Carollee Howes, Graduate School of Education & Information Studies, University of California, Los Angeles, Los Angeles, CA 90095-1521; E-mail: howes@gseis.ucla.edu.

Insecure and disorganized child–mother attachment organizations also are associated with children who live in difficult life circumstances (Carlson et al, 1989; Lyons–Ruth, Connell, Grunebaum, & Botein, 1990; O'Conner et al., 1987; Rodning et al., 1991; Spieker & Booth, 1988). Children whose prior experiences suggest that adults cannot be trusted to care for them or to help them organize their worlds often will act towards a teacher as if she too cannot be trusted (Sroufe, 1983). Teachers vary in their ability to disconfirm these distrusting behaviors and work with the child to create a positive child–teacher relationship (Howes & Hamilton, 1992; Sroufe). In this work we draw on attachment theory and assessment to create profiles of child–teacher relationships as part of an ongoing program of research designed to enhance teachers' abilities to work with children from difficult life circumstances (Howes & Ritchie, 1997).

Profiles or categories of child–adult rela-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

tionships have a long history within attachment theory and assessment (Ainsworth, Blehar, Waters, & Wall, 1978; Cassidy & Berlin, 1994; Main & Solomon, 1990). These categories describe distinct patterns of attachment behaviors. Attachment theorists suggest that there are three basic attachment organizations: secure, insecure avoidant, and insecure ambivalent/resistant (Ainsworth et al.). The optimal attachment organization is a secure organization. Children with secure child–adult attachment organizations trust adults to care for them.

Attachment theorists have described two attachment organizations associated with insecure relationships—avoidant and ambivalent/resistant (Ainsworth et al., 1978). Children with avoidant child–adult attachment organization turn away rather than seek comfort from adults because they have consistently experienced rejection and insensitivity from adults (Ainsworth et al.). Since they expect the adult to reject them they tend to act in a hostile fashion before the adult has an opportunity to be rejecting. Alternatively, they may avoid the adult to avoid being rejected. Children with avoidant maternal attachment histories tend to be rated by teachers as high in aggression and passive withdrawal (Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989).

Children with an ambivalent/resistant child–adult attachment organization also do not trust their attachment figure to provide comfort and emotional security. However, in contrast to children with avoidant attachments, their experience of the attachment figure has been inconsistent, and thus confusing (Cassidy & Berlin, 1994). Sometimes the adult will be there for them and other times the adult will withdraw from the child. Children with ambivalent/resistant attachment organization tend to be dependent and hard to comfort. These children may appear to seek comfort, and then reject the adult's attempts to provide it. Thus, these children are both "clingy" and difficult. Children with a history of ambivalent/resistant maternal attachment are characterized as fearful and inhibited in exploration with both peers and materials (Cassidy & Berlin).

Some children with insecure child–adult attachment organizations are disorganized as well as insecure (Main & Solomon, 1990). Children with disorganized child–adult attachment organizations' past experiences with attachment figures leave them with no coherent strategies for seeking comfort or security. Unlike the children with avoidant child–adult attachment organizations who reject the adult, and the children with ambivalent/resistant child–adult attachment organizations who engage the adult in maladaptive ways, children classified as disorganized are fearful of the attachment figure. Young children with initial disorganized child–adult attachment organizations, by school age tend to be hostile, aggressive, and unable to trust adults to care for them or to help them organize their worlds (Lyons–Ruth, 1996).

Traditionally children are classified into a child–adult attachment organization category using the Strange Situation Procedure (Ainsworth et al., 1978; Main & Solomon, 1990). The Strange Situation is a laboratory procedure that was developed for toddler age children. The Strange Situation has been criticized for its lack of validity, both ecological (Bronfenbrenner, 1979; Clarke–Stewart, 1988) and based on age of child (Waters & Deane, 1985). The Attachment Q-Set (AQS; Waters, Vaughn, Posada, & Kondo–Ikemura, 1995) is an alternative assessment, which has good validity with the Strange Situation (Vaughn & Waters, 1990; Howes & Hamilton, 1992; van Ijzendoorn, Vereijken, & Riksen–Walraven, in press). The AQS can be used for a broader age range than the Strange Situation. Because it is based on observation in children's natural environments, it has more ecological validity. The AQS may be particularly suitable for children with difficult life circumstances because traveling to a laboratory may introduce additional stress to vulnerable families. However, the AQS yields a continuous score representing attachment security rather than specific insecure and disorganized organization classification. As teachers' strategies for enhancing relationship formation may differ for children with different insecure and disorganized attachment organizations, we needed to create child–adult at-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

tachment organization categories from the AQS.

The nature of a Q-Sort makes factor analytic procedures on Q-Set items problematic (Waters & Deane, 1985). The fixed distribution of the Q-Sort interferes with the assumptions underlying factor analysis. Therefore, subscales derived from the AQS must be constructed by identifying conceptually set of items and using reliability and validity analysis to justify the item selection. To date, three research groups have published subscales of AQS items designed to capture the theoretical constructs inherent in the basic attachment organizations—insecure either avoidant or ambivalent/resistant, and secure—seeking comfort, seeking proximity and harmonious interactions (Howes & Smith, 1995; Pedersen & Moran, 1995; Posada, Waters, Crowell, & Lay, 1995). We used these subscales to create categories for insecure and organization attachment organizations.

There is a growing literature based on observing teacher–child attachment relationships in child care settings (Goossen, 1990; Howes, in press; Sagi, Lamb, Lewkowicz, Shoran, Dvir, & Ester, 1985; van Ijzendoorn, Sagi, & Lamberman, 1992). In general, children who experience sensitive and responsive teachers form secure attachment relationships with them (Howes & Smith, 1995). The findings of the literature suggests that teachers can be successful in constructing teacher–child relationships that are different in quality from the adult–child relationships children experience at home (Goossen, 1990; Howes, in press; Sagi, Lamb, Lewkowicz, Shoran, Dvir, & Ester, 1985; van Ijzendoorn, Sagi, & Lamberman, 1992). One recent study finds that child–teacher attachment relationships can serve as compensatory relationship experiences for children who have experienced difficult life circumstances (Howes & Ritchie, 1998).

A second relevant literature concerns elementary teachers' perceptions of teacher–child relationships. This literature suggests that the quality of the teacher–child relationship organizes the child's experiences in school. Pianta, working from an attachment theory perspective, has identified three types of teacher perceived teacher–child relationships in the primary grades: close, conflictual, and dependent (Pianta, Steinberg, & Rollins, 1995). The child with a close and positive teacher–child relationship can use the support provided by this relationship to explore and master school learning tasks. Alternatively, the child with conflictual teacher–child relationship cannot use that relationship as a base of support. Furthermore, an uncomfortable teacher–child relationship may interfere with the child's attention to the school environment and interfere or distract the child from learning and achievement. A child who is uncomfortable with the teacher may be anxious or fearful about going to school. A third feature of teacher–child relationships is dependency. Clinging, and immature rather than close and positive reciprocated interactions characterizes a dependent teacher–child relationship. A child who is overly dependent on the teacher is unlikely to explore the school environment or relationships with peers (Birch & Ladd, 1997). Therefore, as with a conflictual teacher–child relationship, a dependent teacher–child relationship also is expected to interfere with school adjustment and achievement. In our current work, we explored associations between teacher perceptions of child–teacher relationships and our created attachment behavior subscales and child–teacher attachment organizations.

A second major goal of this study was to validate our created attachment behavior subscales and child–teacher attachment organizations. Theoretical and empirical work based on mother–child attachment suggests that children with insecure, particularly insecure disorganized and insecure-avoidant, child–adult attachment relationships are rated as having behavior problems associated with hostility and aggression (Greenberg, Speltz, & DeKlyen, 1993; Lewis, Feiring, McGuffog, & Jaskir, 1984; Lyons–Ruth, Alpern, & Repacholi, 1993). Children with ambivalent/resistant child–adult attachment organizations are rated as having behavior problems associated with moodiness and depression (Cassidy & Berlin, 1994; Egeland & Sroufe, 1981; Renken et al., 1989; Sroufe, 1983; Sroufe, Egeland, & Kreutzer, 1990). Both types of insecure child–adult attachment organizations,

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

avoidant and ambivalent/resistant, as well as disorganized child–adult attachment, have been linked to poor peer relations in childhood and later developmental periods (Elicker, Egeland, & Sroufe, 1992; Erickson, Sroufe, & Egeland, 1985; Jacobson & Wille, 1986; LaFreniere & Sroufe, 1985; Park & Waters, 1989; Pianta & Steinberg, 1992; Rothbaum, Schneider–Rosen, Potts, & Beatty, 1995; Sroufe, 1983; Turner, 1991). By using a large sample and creating disorganized and both insecure child–adult attachment organization in the current analysis we are able to explore differential associations between attachment organization and peer relations.

Method

Sample

Three thousand and sixty-two children and their primary teachers in child care participated in this research. The children were drawn from five studies of children enrolled in center based child care and intervention programs. The sampling procedure for all studies was first to select programs, and then to select children from within the program. A primary teacher was selected for each child in these studies. A primary teacher was defined as the lead caregiver in each room, unless the observed child directed all of his or her attachment behaviors to another teacher in the classroom. In that case (5% of the participants) the primary teacher was redefined to be the target of the child's behaviors. All participating children had been cared for by their primary teacher for at least two months prior to data collection.

As can be seen in Table 1, the children ranged in age from toddlers to kindergartners, and were diverse in ethnic background. Fifty-five children (2%; Study 5) were diagnoses with severe social and emotional problems and enrolled in a therapeutic preschool. Five hundred children (16%) (Studies 2 and 3) were enrolled in intervention programs on the basis of family poverty and another 1035 (34%) children attended subsidized child care programs for low-income children (Studies 1 and 4). Children in the five studies were significantly different in age, $F(4, 3058) = 104.93$, $p = .0001$, and in ethnicity, $\chi^2(16) = 2723.6$, $p = .0001$.

In study one, 150 representative child care centers were studied three times over a 5-year period. During each period of data collection six children were randomly selected from three classrooms within the center. All children were enrolled at least 20 h/week in center-based child care. As can be seen in Table 1, the children in Study 1 were primarily White and African American. Forty percent of the sample attended subsidized child care programs for low-income children. The full age range of children enrolled in the child care centers was sampled.

The children in study two were selected by first randomly selecting 62 child care centers from the list of licensed child care centers in Hawaii that had enrolled at least one child participating in a State funded program to provide full-day child care to low income 4-year-olds. Once the center was selected all the children enrolled in the subsidized program at that center were invited to participate. As can be seen in Table 1 all of the children in this study were 4 or 5 years old at the time of data collection. Almost all of children were Asian American or Eurasian. Sixty-six percent of children spoke a different language at home than was spoken in the child care center.

All of the children in Study 3 were enrolled in a part-day Head Start program in a midwestern city. Eight randomly selected children in 40 randomly selected classrooms (20 in each of 2 years) participated in the study. As can be seen in Table 1, almost all the children in this study were African American between the ages of 3 and 5 years.

The children from study four were enrolled in child care centers in Los Angeles County identified by community leaders as providing good child care for low-income children of color. Nine child care programs participated in this study. Four children were randomly selected from each classroom in the participating centers. As can be seen in Table 1 the children ranged in age from toddlers to kindergartners and were primarily Latino and African American.

The children from Study 5 were enrolled

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

Table 1. *Participants*

	Study					
	1 *M* (%) (*SD*) Range	2 *M* (%) (*SD*) Range	3 *M* (%) (*SD*) Range	4 *M* (%) (*SD*) Range	5 *M* (%) (*SD*) Range	Total *M* (%) (*SD*) Range
No. children	2454	176	324	53	55	3062
Age (months)	41.32 (15.51) 10–76	58.79 (3.53) 50–65	52.69 (8.82) 35–71	51.09 (12.53) 20–82	53.47 (9.80) 37–76	44.08 (15.30) 10–82
Percent girls	48	47	50	49	29	48
Ethnicity (%)						
White	63	11	1	6	44	51
African American	32	0	98	34	24	38
Latino	3	0	0	43	11	3
Asian	0	40	0	9	0	3
Biracial	2	49	1	8	21	5
Classroom environmental quality	4.46 (1.16) 1.30–7.0	4.83 (.81) 2.31–6.51	4.43 (1.00) 2.72–5.72	5.79 (.54) 5.23–6.67	6.64 (.03) 6.51–6.75	

in a therapeutic preschool. As can be seen in Table 1, participating children tended to be male and multiethnic. The children included in this sample were part of a larger ongoing longitudinal study of social relationships at this school (Howes & Ritchie, 1998). Only the first assessed teacher–child relationship was included for each child in this sample. Children tended to enter the school as 4-year-olds. Seventy-five percent of the children in the sample were asked to leave one or more child care settings prior to admission to the therapeutic preschool. In prior settings, teachers and administrators found behaviors including aggression, depression, inability to use adults for solace or guidance, poor peer interactions, and frequent flights into disorganized behavior disturbing and disruptive of regular school life. Only half of the children were living with one or both of their biological parents. Children had experienced an average of 2.6 different home placements with adult caregivers. When we considered only those children who had experienced more than one placement, the average number of home placements was 4.7, indicating many disruptions for children who were only 4 and 5 years old. Eighty percent of the children in the therapeutic preschool were diagnosed with a variety of emotional and behavioral problems. Half of these children had been prenatally exposed to drugs. Twenty percent of the children in the therapeutic preschool were diagnosed as having Pervasive Developmental Disorder (PPD). We included the PDD children in an attachment study because recent literature on these children reports that attachment assessments can validly be made on these children (Dissanayake & Crossley, 1996; Capps, Sigman, & Mundy, 1994; Rogers, Ozonoff, & Maslin–Cole, 1993).

In all five studies the quality of the classrooms of participating child care centers was assessed using the Early Childhood Environmental Rating Scale (ECERS; Harms & Clifford, 1980) which has been widely used in child development research (Phillips, 1987). The scale comprehensively assesses the day-to-day quality of care provided for children. It is a 37-item scale organized under seven categories: personal care routines, furnishings and display for children, language-reasoning experiences, fine and gross motor activities, creative activities, social development, and adult needs. Each item is scored on a seven point scale with a ranging from one "inade-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

quate," three "minimal," five "good," to seven "excellent" care. Median interobserver reliability for ECERS scores in the current studies was $r = .91$. Internal consistency of the scale ranges from .81 to .91 (Harms & Clifford, 1980). Test–retest reliability over a 1-month period is $r = .96$ (Harms & Clifford). ECERS scores are associated with child development outcomes and teacher behaviors in a number of studies (Phillips; Whitebook, Howes, & Phillips, 1990). In nationally representative studies of child care in the United States (e.g., Helburn, 1995) only about 10% of classrooms score in the good range. As can be seen in Table 1, the quality of child care varied across studies in our sample. In particular, all of the classrooms in Studies 4 and 5 were assessed as good to excellent in quality.

Measures and procedures

The Attachment Q-Set (Waters, 1990) data were all collected by independent observers trained by one of the authors. In all cases training consisted of intensive work with video records of children and teacher interaction in child care centers and then "live" training in child care centers. Following training, each observer reached at least 85% agreement with the trainer on each item of each measure. Interobserver reliability checks between pairs of observers were conducted throughout data collection. The median κ for the AQS was .87 for security (range .83 to .97).

The validation measures of child behavior problems, peer relations, and teacher perceived relationships quality were compiled by different raters than the AQS raters. The procedures and measures varied somewhat across studies. In Studies 1, 2, 3, and 5, teachers completed ratings of behavior problems for each child (Preschool Behavior Questionnaire; Behar & Stringfield, 1975 for Studies 1, 2 and 3; Child Behavior Checklist; Achenbach & Edlebrock, 1983, for study 5). In Studies 2 and 3, teachers completed the Student–Teacher Relationship Scale for each child (Pianta & Steinberg, 1992). In Study 5 the program director completed the Social Competence with Peers measure for each child (Howes, 1988).

In Studies 1, 2, 3, and 5 observers that completed the AQS were trained to use the Peer Play Scale (Howes & Matheson, 1992) following the same procedures as described above for the AQS. The median κ for the Peer Play Scale was .89 for play complexity (range .85–.92).

Attachment Q-Set

The Attachment Q-Set (Waters, 1990) was completed on the relationship between the child and the primary teacher. Observations, conducted in the classroom, lasted a minimum of 2 hr. The observer watched as the child and teacher pursued normal activities in the setting. Following the observation the observer completed the 90-item AQS.

To obtain security scores the raw scores from the AQS were correlated with the criterion scores provided for security by Waters. The correlation coefficients are the children's security scores. Scores can vary from –1.0 to 1.0. A higher score indicates greater security.

Behavior problems

Behar Preschool Behavior Questionnaire. The Preschool Behavior Questionnaire (Behar & Stringfield, 1974) consists of 30 items, each rated on a 4-point scale. This instrument was specifically designed to screen preschool-aged children in group-care settings for aggression, anxiety, and hyperactivity. Behar (1977) reported interrater reliabilities of .93. In the current work we used an average item score ($\alpha = .94$). In earlier work, average item scores differentiated between children attending a therapeutic nursery and a normative sample (Behar, 1977). Each average item score ranges from 1 to 4. A higher score indicates more problems.

Child Behavior Checklist. The Child Behavior Checklist measures behavioral symptomatolgy in children (Achenbach & Edelbrock, 1983). The teachers rated 113 behavior items in terms of how often the child displays the behavior (never, sometimes, frequently). The measure is scored against a normative crite-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

rion and results in a profile that demarcates "normal" versus "significant" symptoms, or symptoms that suggest the need for mental health intervention. The ratings result in a score for internalizing symptoms (those that are turned inward such as depression and anxiety), and a score for externalizing symptoms (those that are turned outward toward other persons or things), such as aggression and destructiveness. A total score reflects a combination of internalizing and externalizing in addition to attention problems, thought problems, and social problems.

Social competence with peers

Peer Play Scale. We used the Revised Peer Play Scale (Howes & Matheson, 1992) to measure the complexity of peer play. The scale has eight scale points. The first four scale points measure solitary play and low-level peer play: onlooker behavior, proximity to peer without interaction, and parallel play when the target child and a peer are within 3 ft of each other and engage in the same activity but do not acknowledge each other. The other scale points capture interactive peer play: parallel play with eye contact, simple social play, complementary and reciprocal play; and two levels of pretend play, cooperative social pretend (the target child and another child enacting complementary roles) and complex social pretend play (the target child and a peer demonstrating both social pretend play and meta-communication about the play). Complementary-reciprocal social play, cooperative pretend play, and complex pretend play are considered competent forms of play with peers (Howes & Matheson). The peer play scale points were mutually exclusive and the highest possible observed scale point was recorded in each 20-s interval. Each child was observed for a total of 60 intervals (a total of 20 min) over a period of 3 to 4 hr. The complexity of behavior with peers was rated in each 20-s interval. From the coded peer play we created a measure of mean level of peer play to represent peer play complexity. The mean level of play is calculated by multiplying the frequency of play at each scale point by the ordinal number of the scale point and then dividing by the total frequency of play.

Social Competence with Peers Rating Scale. The director of the therapeutic preschool programs completed the Social Competence with Peers Rating scale (Howes, 1988). This rating scale is a 18-item Likert rating scale. Three subscales are derived from the scale: Difficult ($\alpha = .93$), the child is easily upset, aggressive, and/or hostile with peers; Sociable ($\alpha = .91$), the child is liked by peers and plays well with them; Hesitant ($\alpha = .96$), the child withdraws from or tends to watch peers. In previous research these teacher ratings reached high agreement with observed peer interaction and predicted social competence with peers over time (Howes, 1988).

Teacher perceptions of the teacher–child relationship

We used the Student Teacher Relationship Scale (STRS; Pianta & Steinberg, 1992) to assess teacher perceptions of the teacher–child relationship. This measure contains 30 questions rated on a 5-point scale (e.g., It is easy to be in tune with what this child is feeling; when this child arrives in a bad mood I know we are in for a long and difficult day). Pianta derives subclass representing negative and positive teacher representations of the teacher–child relationship: close ($\alpha = .84$) and conflictual ($\alpha = .92$). These subscale scores are associated with children's classroom and home behaviors (Pianta & Steinberg).

Results

Creation of attachment organization categories

We created attachment organization categories by first creating subscales of AQS items and then using factor analysis to cluster these subscales. As discussed in the introduction, the fixed distribution required in a Q-Sort, precludes factor analysis of AQS items. Once created subscales of Q-Sorts are interval scales with normal distributions. Therefore, factor analysis techniques can be used under-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

Table 2. *Subscales of AQS items*

Scale Name	No. Items	Reliability (α) Original	Reliability (α) Current	Final Subscale
Pedersen & Moran (1995)				
Secure base	14	.81	.49	Dropped
Affective share	3	.76	.19	Dropped
Compliance	6	.69	.89	Harmony
Fussy/difficult	14	.85	.83	Resist
Enjoyment of physical contact	5	.93	.86	Comfort
Howes & Smith (1995)				
Secure base	5	.67	.80	Base
Avoid	8	.74	.75	Avoid
Seek comfort	6	.77	.83	Comfort
Positive negotiate	4	.77	.91	Harmony
Difficult negotiate	3	.67	.86	Resist
Posada et al. (1996)				
Physical contact	7	.80	.71	Comfort
Proximity	9	.77	.73	Base
Smooth interaction	17	.91	.82	Harmony

stand relations among subscales. We began by examining the reliability in this data set of 13 previously published subscales for the AQS. We used the reliable subscales in a factor analysis and then used the conceptual framework provided by attachment theory for classifying secure and insecure relationships (Ainsworth et al., 1978; Main & Solomon, 1990) to interpret our clusters of subscales. We then created subscale scores by summing the items in the subscales, effectively counting only once items that were common to more than one subscale. We then used subscale and attachment security scores to create attachment organization categories.

Subscales

Using all of the AQS items from the 3062 teacher–child relationships represented in our sample we calculated subscale scores for the 13 previously published subscales. We used Cronbach α scores to assess the reliability of each subscale. The list of subscales, source, number of items, original reliability, and reliability in our sample are displayed in Table 2. Eleven of the subscales had acceptable reliability in our sample.

We then randomly divided our sample of teacher–child relationships into two subsamples. These samples were identical in average age, ethnic and gender composition, and almost identical in subscale scores. We conducted a separate factor analysis on each subsample. The results of the two factor analyses are in Table 3. Each of the analyses resulted in five factors with identical factor structure. We labeled the five factors: avoid; resist; seeks comfort; secure base; and harmony. We considered the avoid factor to indicate an avoidant (A) organization, the resist (C) factor to indicate a resistant organization, and the remaining three factors to indicate secure (B) attachment behavior organizations.

The AQS items included in the subscales that loaded on the seeks comfort factor were items numbers 3 (reversed), 11, 28, 33 (reversed), 44, 53, 64, and 71. The AQS items included in the subscales that loaded on the harmony factor were items numbers 1, 2 (reversed), 6 (reversed), 9 (reversed), 18, 19, 24, 32, 38 (reversed), 41, 54 (reversed), 62, 65 (reversed), 70, 79 (reversed), and 81 (reversed). The AQS items included in the subscales that loaded on the resist subscale were items numbers 2, 8, 9 (reversed), 10, 13, 20 (reversed), 26, 30, 38, 54, 61, 62 (reversed), 74, 79, and 81. The AQS items included in the subscales that loaded on the secure base factor were items numbers 11, 14, 21, 25 (re-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

Table 3. *Factor structure of subscales*

	Comfort		Harmony		Resist		Base		Avoid	
	1	2	1	2	1	2	1	2	1	2
Pederson & Moran (1995)										
Compliance			.93	.93						
Fussy					.86	.85				
Enjoyment of physical contact	.94	.95								
Howes & Smith (1995)										
Secure base							.90	.89		
Avoid									.75	.78
Seek comfort	.96	.96								
Positive negotiate			.95	.95						
Difficult negotiate					.86	.84				
Posada et al. (1996)										
Physical contact	.94	.94								
Proximity							.88	.89		
Smooth interaction			.73	.74						

Note: The numbers in the table are factor scores.

Table 4. *Intercorrelations among subscale and security scores*

	Resist	Seek Comfort	Secure Base	Harmony	Security
Avoid	–.03	–.51	–.64	.06	–.18
Resist		–.09	.13	–.71	–.23
Seek comfort			.46	–.09	.16
Secure base				–.14	.12
Harmony					.21

Note: The numbers in the table are Pearson Product Moment Correlations.

versed), 35, 36, 43, 59 (reversed), 69 (reversed), 80, and 90. The AQS items included in the subscale that loaded on the avoid factor were items numbers 5 (reversed), 25, 29, 35, 43 (reversed), 59 (reversed), 76, and 88.

We created subscale scores by summing the AQS items included in each of the subscales and dividing by the number of items, thereby placing each subscale score on a 1 to 9 scale. Intercorrelations among subscale scores and security scores are in Table 4. There were modest correlations between subscale and security scores in the theoretically expected directions. That is, avoid and resist scores were negatively associated with security scores and seek comfort, secure base, and harmony subscales scores were positively associated with security scores. High avoid subscale scores were negatively and moderately associated with seek comfort and secure base subscale scores. High resist subscales scores were negatively and moderately associated with harmony subscale scores. Seek comfort subscale scores were positively and moderately associated with secure base subscale scores. The modest intercorrelations among the three subscales indicating secure (B) attachment behavior organizations suggest that each of the subscales describes an element of secure behavior that is semi-independent of the others.

Differences in subscale scores by gender, race, age, and study

We used a multivariate analysis of covariance to examine differences in subscale scores by

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

gender, race, age, and study because gender, race, and study were confounded with each other. There were main effects for the covariate of age, $F(5, 2726) = 60.15$, $p = .000$, and for race, $F(20, 10916) = 2.47$, $p = .00$, but not for gender or for study. There were no significant interactions. We used partial correlations, holding constant race, gender, and study to find that as age increased so did avoid subscales, and as age decreased secure base and comfort subscales increased. We used post hoc Scheffe tests to explore race differences. Asian children had higher avoid and harmony subscales than other race children. Latino and African American children had higher secure base subscale scores than other race children.

Creating attachment organization categories from subscales

The AQS considered a score of 7 and above as indicating very characteristic behavior. Following this convention each AQS relationship in our data base was assigned a 0 or 1 for each subscale. Scores of 1 were given if the subscale average item score was a 7 or above.

Some research literature on mother–child attachment using the AQS classify as secure all sorts with security sorts of .33 and higher because in normative samples 67% of the sorts had scores of .33 and above (Kerns, Klepac, & Cole, 1996; Park & Waters, 1989; Teti & Ablard, 1989; Wheeler, Seifer, Barends, Thomas, Milano, & St.-Andre, in press). We examined the distribution plot of security scores in our sample to determine whether scores of .33 represented a break point in the distribution. The distribution plot of security scores in our sample indicated two break points in the distribution of security scores: security scores of .33 and security scores of .00. Therefore based primarily on the distribution of our sample and secondarily on prior work, we assigned scores to the AQS relationships of 2 if the security score was .33 or above, 1 if the security score was .00 or above and below .33, and 0 if the security score was below .00.

Using these two assigned scores, we classified each AQS relationship into an organizational category. The definition and distribution of these categories is in Table 5. Three of these categories (avoidant, resistant, and secure) correspond directly to the subscales. One category consisted of sorts high in both avoidance and resistance. This category was labeled avoidant/resistant. Another category consisted of children who showed some elements of security (high scores on harmony, seeking comfort, or secure base) but security scores less than .33. We labeled this category near secure. The remaining category consisted of children who had low scores on both the secure and insecure subscales. We labeled these sorts unclassifiable.

To better understand the attachment behaviors of children classified as having unclassifiable and near secure child–teacher attachment organizations we compared subscale scores within each attachment organizational category. There were 1112 children classified as near secure in their child–teacher attachment organization. Subscale scores for these children were significantly different, $F(4, 1077) = 828.56$, $p < .001$. Post hoc Scheffe tests indicate that children classified as near secure in their child–teacher attachment organization had higher harmony ($M = 6.91$, $SD = 1.24$) scores than any other subscale score and higher avoid ($M = 5.85$, $SD = 1.15$) than seek comfort ($M = 4.76$, $SD = 1.48$), secure base ($M = 4.49$, $SD = 1.40$), and resist ($M = 3.90$, $SD = 1.07$) scores. Therefore, according to the AQS convention that scores of 7 and above as indicating very characteristic behavior and scores of 3 and below as indicating very uncharacteristic behavior, children classified as near secure in their child–teacher attachment organization appear to engage in harmonious interaction, to not resist the teacher, and to have a tendency to avoid the teacher.

There were 295 children whose child–teacher attachment organization could not be classified. Subscale scores for these children also were significantly different, $F(4, 2817) = 21.20$, $p < .001$. Post hoc Scheffe tests indicate that children whose child–teacher attachment organization could not be classified also had higher harmony ($M = 5.24$, $SD = 1.40$)

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

Table 5. *Distribution of subscale classifications*

Category	Combination	*n*	Sorts (%)	Security *M*	Security *SD*	Range
Unclassifiable	0 on all subscales and security score less than .33	295	10	.02	.18	−.53 to .32
Avoidant/resistant	1 on avoid, 1 on resist, and security score <.33	12	0.4	−.28	.08	−.38 to −.13
Resistant	1 on resist and security score <.33	133	4	−.15	.20	−.57 to .32
Avoidant	1 on avoid and security score <.33	616	20	−.01	.18	−.55 to .32
Near secure	1 on base, 1 on comfort, or 1 on harmony and security score >0 and <.33	1112	35.4	.19	.10	0 to .32
Secure	1 on base, 1 on comfort, or 1 on harmony and security score ≥.33	892	29	.43	.09	.33 to .77

and avoid ($M = 5.34$, $SD = .95$) subscale scores than seek comfort ($M = 4.89$, $SD = 1.37$), secure base ($M = 4.69$, $SD = 1.26$), and resist ($M = 4.49$, $SD = 1.17$) scores. However none of these subscale scores met the AQS highly characteristic or highly uncharacteristic behaviors convention. The most that can be said about the behavior of these children is they have a tendency to avoid the teacher and to be compliant with her (relatively low resist and relatively high harmony subscale scores).

We used the previous analysis of the children classified as having near secure child–teacher attachment organizations and inspection of the content of the AQS items used to create the subscales to generate the following descriptions of children's behavior with adults in each of the organizational categories:

Avoidant insecure. Children are more interested in the materials provided in the classroom than in the teacher or other children. Children do not approach the teacher and stay apart from her so the teacher can easily lose track of them. When the teacher approaches the children they act as if they do not hear what she says or notice what she does. After responding to a teacher request to come near, they quickly leave her side. Children do not call out to the teacher to show her something new. When the children are hurt or upset they do not seek out the teacher and move away from her if she moves to comfort them.

Resistant insecure. Children are irritable and fussy with the teacher with no apparent cause. Children often cry, and they cry hard and are difficult to console. They resist classroom routines, such as picking up. If the primary teacher leaves the room the children cling to her and then continue to cry after she leaves. Every bump or scratch is an occasion for tears. Children easily become angry and frustrated when they cannot accomplish a task. Children are demanding and impatient with the teacher. They are not satisfied with her attempts to respond to them. Children act as if they expect the teacher to interfere in their activities. Children are rough with the teacher and bump, kick, or scratch her as they engage in play with her. Children act as if they expect that the teacher will not help them and easily become angry with her. Children cry to get the teacher to do what they want her to do.

Avoidant/resistant insecure. At times the children avoid the teacher as in avoidant insecure and at other times the children engage the teacher in demanding, difficult ways as in resistant.

Near secure. Children follow classroom routines. Children follow teacher's directions. Children stop misbehavior when teachers ask them to. Children sit near the teacher or on her lap if she initiates the contact. Children ask teachers for help. Children have a ten-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

dency to avoid the teacher. That is, children are more interested in the materials provided in the classroom than in the teacher or other children and children do not approach the teacher and stay apart from her so the teacher can easily lose track of them.

Secure. Children accept comfort if they are hurt or upset. Children mold their bodies to the teacher if she is holding them or gently touch the teacher as they play with her. Children spontaneously hug the teacher. If children are afraid or upset the teacher can hold them and children relax. Children readily share their activities with the teacher, going to her with new things and welcoming her entrance into their play. Children check back with the teacher throughout the day. Children ask for help if they need it. Children use the teacher's face for information. Children are lighthearted and playful with the teacher. Children easily follow the suggestions and directions of the teacher. Children act sorry or ashamed if the teacher speaks firmly to them. Children stop misbehavior when teacher says to stop. Transitions within the day are smooth and easy for these children. Children are happy to see the teacher at the beginning of the day.

We compared security scores for children classified into different attachment organization categories. The descriptive data for these comparisons also are in Table 5. There were significant differences, $F(5, 3057) = 1189.85$, $p < .001$. Scheffe tests were used to compare groups. As would be expected given the category definitions, children classified as secure in their child–teacher relationships had higher security scores than children in any other classification and children classified as having near secure child–teacher relationships had higher security scores than children classified as having resistant, avoidant, avoidant-resistant, or unclassifiable child–teacher relationships. Children classified as having unclassifiable child–teacher relationships had higher security scores than children classified as having resistant, avoidant, or avoidant-resistant child–teacher relationships. Children classified as having avoidant child–teacher relationships had higher security scores than children classified as having resistant, or avoidant-resistant child–teacher relationships.

Associations among organizational categories, gender, race, age, and study

We explored gender, race, age, and study associations with attachment organization classification by first using log linear and analysis of covariance strategies again because gender, race, and study were confounded. When study was held constant in these analyses, there were no significant associations between attachment organization classification, race, or gender. We then examined age differences in children classified in different organizations using a two way analysis of variance (study × organizational category). There was no significant main effect or interaction for organizational category. Not surprisingly, given the difficult life circumstances of children enrolled in the therapeutic preschool, these children were more likely to be classified as resistant (29% of the sample) and as avoidant-resistant (15% of the sample) than children who participated in the other studies, $\chi^2(20) = 434.58$, $p < .001$.

Validation of attachment subscales and organization categories

We examined the validity of the subscales and attachment organization categories using behavior problem, social competence with peers, and teacher perception of child–teacher relationship scores. Subscale scores were correlated with child out come scores using partial correlations to control for gender, race, age and study. These associations are in Table 6. Child outcome data for children classified into different child–teacher attachment relationship categories were compared using analysis of covariance. The covariates in these analyses were gender, race, age and study. We used Scheffe post hoc tests to compare groups. The descriptive statistics for these analyses are in Table 7.

Behavior problems

As can be seen in Table 6 scores on the AQS subscales and scores on the behavior problem

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

Table 6. *Associations between subscale scores and child outcomes*

	Avoid	Resist	Seek Comfort	Secure Base	Harmony
Behavior problems					
Preschool Behavior Questionnaire ($n = 2954$)	.04	.18***	–.03	–.00	–.18***
Child Behavior Checklist ($n = 55$)					
Externalizing	–.31**	.56***	.05	–.22*	–.44**
Internalizing	–.03	–.13	.05	.10	.37**
Total	–.12	.43**	.03	.13	–.20
Social competence with peers					
Observed ($n = 6016$)					
Complexity of play	.05	–.06	–.04	–.07	.05
Ratings ($n = 55$)					
Difficulties	.26*	.46**	–.34**	.24*	–.50**
Hesitant	.53**	–.06	–.27*	–.39**	–.38**
Sociable	–.42**	.05	.26*	.28*	.18
Teacher perception of child–teacher relationship ($n = 500$)					
Close	.03	–.07	–.03	.01	.07
Conflict	.07	.54**	.06	–.09	–.39**
Dependency	.01	.03	.08	–.04	.03

Note: The numbers in the table are partial correlations controlling race, gender, age, and study.
*$p < .05$. **$p < .01$. ***$p < .001$.

measures were associated. Children with high behavior problem scores on the Preschool Behavior Checklist also had high resist subscale and low harmony subscale scores. Children with high externalizing scores on the Child Behavior Checklist also had high resist subscale and low avoid, secure base and harmony subscale scores. Children with high internalizing scores on the Child Behavior Checklist also had high harmony subscale scores. Children with high total scores on the Child Behavior Checklist also had high resist subscale scores.

Children with different attachment organizations also differed in ratings of behavior problems. See Table 7. There were significant differences among children with different attachment relationship organizations for scores on the Preschool Behavior Questionnaire, $F(5, 1992) = 16.58$, $p < .01$, and for externalizing scores on the Child Behavior Checklist, $F(4, 50) = 2.19$, $p < .05$.

Children with unclassifiable, avoidant-resistant, resistant and avoidant attachment organizations had higher Preschool Behavior Questionnaire scores than children with secure and near secure attachment organizations. Children with avoidant-resistant and resistant attachment organizations had higher Preschool Behavior Questionnaire scores than children with unclassifiable and avoidant attachment organizations. Children with avoidant-resistant and resistant attachment organizations had higher Child Behavior Checklist externalizing scores than children with avoidant, near secure and secure attachment organizations.

Social competence with peers

There were no associations between subscale scores and observed social complexity of play with peers. However, subscale scores and ratings of social competence with peers within the therapeutic sample were associated. See Table 6. Children rated as having more difficulties with peers also had higher avoid and resist subscale scores and lower seek comfort, secure base and harmony subscale scores. Children with higher hesitant with peers scores had higher avoid subscale scores and lower seek comfort, secure base and harmony subscale scores. Children with higher sociable with peers scores had lower avoid subscale

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

Table 7. *Differences in child outcomes among children with different teacher–child attachment organizations*

	Unclassifiable		Avoidant Resistant		Resistant		Avoidant		Near Secure		Secure	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Behavior Problems												
Preschool Behavior Questionnaire ($n = 2954$)	1.46	0.32	1.63	0.20	1.58	0.41	1.46	0.33	1.37	0.30	1.34	0.27
Child Behavior Checklist ($n = 55$)												
Externalizing			72.0	4.2	67.0	10.2	56.7	5.8	60.7	10.4	58.5	14.0
Internalizing			64.9	7.1	59.2	11.1	62.5	10.3	61.7	6.7	68.5	7.5
Total			68.8	3.5	64.8	9.9	62.7	4.8	62.5	9.1	60.5	7.8
Social competence with peers												
Observed ($n = 6016$)												
Complexity	2.21	0.82	2.21	0.70	2.31	0.87	2.25	0.80	2.21	0.86	2.42	0.81
Ratings ($n = 55$)												
Difficulties			3.79	0.45	3.65	0.82	3.23	0.43	2.57	0.77	1.99	0.49
Hesitant			3.08	1.27	2.76	1.15	3.99	0.78	2.97	1.03	2.81	1.27
Sociable			2.36	1.04	2.37	0.89	1.87	0.60	2.51	0.59	2.69	0.99
Teacher perception of teacher–child relationships ($n = 500$)												
Close	3.95	0.71			3.92	0.65	3.90	0.60	3.99	0.59	4.01	0.69
Conflict	2.08	0.78			2.01	0.92	2.00	0.79	1.77	0.69	1.69	0.67
Dependency	2.17	0.80			2.13	0.74	2.11	0.80	2.13	0.71	2.11	0.72

Note: The numbers in the table are adjusted means.

scores and higher seek comfort, and secure base subscale scores.

Children with different attachment organizations differed in both measures of social competence with peers (Complexity of play: $F(5, 1516) = 2.26$, $p < .05$; Ratings of difficult: $F(4, 50) = 6.16$, $p < .001$). See Table 7. Children classified as secure in their child–teacher relationship engaged in more complex play with peers than children with other attachment organizations. Children classified as avoidant-resistant or resistant in their child–teacher relationships had higher ratings of difficulty with peers than children with other attachment organizations.

Teacher perception of child–teacher relationship

None of the children classified as avoidant-resistant in their child–teacher attachment organization had teacher ratings on the STRS. Therefore, comparisons were made between children classified in the other four child–teacher attachment organizations. Children perceived by their teachers as having child–teacher relationships higher in conflict had higher resistance and lower harmony subscores. See Table 6. Children classified as unclassifiable, resistant, and avoidant in their child–teacher relationship organization had higher conflict scores than children classified as secure or near secure, $F(4, 251) = 4.317$, $p < .01$ (see Table 7).

Discussion

The findings of these analyses suggest that the AQS can be used to create meaningful descriptive subscales and categories of teacher–child attachment relationship organization. Children enrolled in child care and interven-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

tion programs have the task of developing relationships with teachers who vary in their sensitivity and responsiveness. Using a large and diverse group of children, we have described a set of different and coherent attachment relationship organizations between children and their teachers. Other research suggests that these attachment organizations are developed through multiple and iterative interactional episodes which are shaped and constructed by behaviors of both the adult and the children (Ainsworth et al., 1978; Bretherton, 1985; van Ijzendoorn et al., in press). Certainly more research is needed to expand our notions of what teacher behaviors contribute to developing child–teacher attachment organizations.

Our findings do suggest that both categories of relationship organization and continuous subscales are useful in understanding children's behaviors with their teachers and in their classrooms. Teacher ratings of children's behavior problems were associated with subscale scores in a predictable fashion. Children observed to have difficult, angry interactions with teachers were rated as high in behavior problems. However, when we compared behavior problem scores using the attachment organizational categories a more fine grained pattern emerged. Categories of attachment organization appear more useful than the continuous measures of attachment behaviors. Children with resistant and avoidant-resistant child–teacher attachment organizations were perceived as more disturbed than children with avoidant child–teacher attachment organizations. This is consistent with differential security scores among children classified as avoidant-resistant, resistant, and avoidant and with the clustering of children with avoidant-resistant and resistant child–teacher attachment organizations in the therapeutic preschool.

Children's social competence with peers also was associated with both subscale scores and with child–teacher attachment organization categories. Children classified as having secure child–teacher attachment organizations played in more complex ways with their peers. Children who were rated as sociable with peers had were observed to be more likely to seek comfort from the teacher and use the teacher as a secure base. These findings replicate a large literature that finds associations between social competence with peers and child–teacher attachment security (Howes, in press). The current analysis expands on these previous findings by differentiating between categories of insecure child–teacher relationships. Children classified as avoidant-resistant and resistant had higher ratings for difficulties with peers than children classified as avoidant or near secure. Ratings of hesitancy with peers were associated with higher avoidance subscale scores but not higher resistance subscale scores. These findings suggest different pathways to maladaptive relationships with peers that deserve further study.

Teachers rated their relationships with children as more conflictual when children were classified as having resistant, avoidant, or unclassifiable insecure child–teacher attachment organizations. Recall, that there were no children classified as avoidant-resistant who also had teacher ratings of child–teacher relationship qualities. Conflictual teacher–child relationship scores were associated with high resistance and low harmony subscale scores. This is important confirmation that the observer Q-Set ratings were consistent with one of the participants in the relationship insiders' viewpoint. These teacher ratings also make clearer the distinction between the children classified as near secure in their child–teacher attachment organization and children who were unable to be classified. Teachers appear to perceive their relationships with children classified as secure and near secure in their child–teacher attachment organization in similar ways and to perceive their relationships with children unclassifiable as conflictual. Perhaps, the children classified as near secure in their child–teacher attachment organization have the ability to cooperate with their teachers which masks their more distrusting behaviors indicated by low security scores.

There are several general implications of these findings. On the level of description, these findings suggest two seemingly contradictory statements. One is that children from

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

difficult life circumstance are able to construct positive relationship with teachers. Further, other research suggests that with more time in the therapeutic preschool, children's security with teachers increases (Howes & Ritchie, 1998). The second general statement, however, is less positive. Less than one-third of the children in this sample, weighed towards low income children of color, constructed secure child–teacher relationships. This suggests that many of their teachers may not be sufficiently attentive and responsive to play their part in constructing trusting child–teacher relationships.

The strategies teachers might use to engage and disconfirm children who begin the child–teacher relationship with behaviors indicative of an avoidant attachment relationship are different than the ones they would use with children with initial resistant attachment relationships (Howes & Ritchie, 1997). For example, teacher training efforts could help teachers recognize different patterns of distrustful behavior. Teachers might be encouraged to persist in comforting and engaging in positive constructive activity with children who initially avoid them. Likewise, teachers could be helped to see that patterns of resistance originate from mistrusting the adult. Our future research in this area is designed to understand how best to facilitate changes in patterns of teacher–child interaction when children present teachers with challenging behaviors.

References

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist*. Burlington, VT: University of Vermont, Department of Psychiatry.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A study of the Strange Situation.* Hillsdale, NJ: Erlbaum.

Behar, L., & Stringfield, S. (1975). A behavior rating scale for the preschool child. *Developmental Psychology, 10*(5), 601–610.

Birch, S. H., & Ladd, G. W. (1997). The teacher–child relationship and children's early school adjustment. *Journal of School Psychology, 35,* 61–79.

Bretherton, I. (1985). Attachment theory: Retrospect and prospect. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research* (pp. 3–35). *Monographs of the Society for Research in Child Development, 50* (1–2, Serial No. 209).

Bronfenbrenner, U. (1979). *The ecology of human development.* Cambridge, MA: Harvard University Press.

Capps, L., Sigman, M., & Mundy, P. (1994). Attachment security in children with autism. *Development & Psychopathology, 6,* 249–261.

Carlson, V., Cicchetti, D., Barnett, D., & Braunwald, K. (1989). Finding order in disorganization. In D. Cicchetti & V. Carlson (Eds.), *Child maltreatment. Theory and research on the causes and consequences of child abuse and neglect* (pp. 494–528). New York: Cambridge University Press.

Cassidy, J., & Berlin, L. (1994). The insecure/ambivalent pattern of attachment: Theory and research. *Child Development, 65,* 971–991.

Clarke–Stewart, K. A. (1988). "The effects of infant day care reconsidered" reconsidered. *Early Childhood Research Quarterly, 3,* 58–97.

Dissanayake, C., & Crossley, S. A. (1996). Proximity and sociable behaviors in autism: Evidence for attachment. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 37,* 149–156.

Egeland, B., & Sroufe, L. A. (1981). Developmental sequelae of maltreatment in infancy. *New Directions for Child Development, 11,* 77–92.

Elicker, J., Egeland, M., & Sroufe, L. A. (1992). Predicting peer competence and peer relationships in childhood from early parent–child relationships. In R. D. Parke & G. W. Ladd (Eds.), *Family–peer relationships: Modes of linkage* (pp. 77–106). Hillsdale, NJ: Erlbaum.

Erickson, M. F., Sroufe, L. A., & Egeland, B. (1985). The relationships between quality of attachment and behavior problems in preschool in a high risk sample. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development, 50* (1–2, Serial No. 209).

Goossen, F. A., & van Ijzendoorn, M. H. (1990). Quality of infant's attachment to professional caregivers: Relation to infant–parent attachment and daycare characteristics. *Child Development, 61,* 832–837.

Greenberg, M. T., Speltz, M. L., & DeKlyen, M. (1993). The role of attachment in the early development of disruptive behavior problems. Special Issue: Toward a developmental perspective on conduct disorder. *Development & Psychopathology, 5,* 191–213.

Harms, T., & Clifford, R. M. (1980). *Early childhood environmental rating scale.* New York: Teacher's College Press.

Helburn, S. (Ed.) (1995). *Cost, quality and child outcomes in child care centers*. University of Colorado at Denver.

Howes, C. (in press). Attachment relationships in the context of multiple caregivers. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment theory and research*. New York: Guilford.

Howes, C., & Hamilton, C. E. (1992). Children's relationships with child care teachers: Stability and concordance with parental attachment. *Child Development, 63,* 867–878.

Howes, C., & Matheson, C. C. (1992). Sequences in the development of competent play with peers: Social and social pretend play. *Developmental Psychology, 28,* 961–974.

Howes, C., & Ritchie, S. (1997). Teachers and attach-

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

ment in children with difficult life circumstances. Manuscript submitted for publication.

Howes, C., & Ritchie, S. (1998). Changes in child–teacher relationships in a therapeutic preschool program. *Early Education and Development, 4,* 411–422.

Howes, C., & Smith, E. (1995). Relations among child care quality, teacher behavior, children's play activities, emotional security, and cognitive activity in child care. *Early Childhood Research Quarterly, 10,* 381–404.

Jacobson, J. L., & Wille, D. E. (1986). The influences of attachment behavior on developmental changes in peer interaction from the toddler to preschool period. *Child Development, 57,* 338–347.

Kerns, K. A., Klepac, L., & Cole, A. K. (1996). Peer relationships and preadolescents' perceptions of security in the mother–child relationship. *Developmental Psychology, 32,* 457–466.

LaFreniere, P. J., & Sroufe, L. A. (1985). Profiles of peer competence in the preschool: Interrelations among measures, influence of social ecology and peer competence. *Developmental Psychology, 21,* 56–69.

Lewis, M., Feiring, C., McGuffog, C., & Jaskir, J. (1984). Predicting psychopathology in six-year-olds from early social relations. *Child Development, 55,* 123–136.

Lyons–Ruth, K. (1996). Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. *Journal of Consulting and Clinical Psychology, 64,* 64–73.

Lyons–Ruth, K., Alpern, L., & Repacholi, B. (1993). Disorganized infant attachment classification and maternal psychosomatic problems as predictors of hostile-aggressive behavior in the preschool classroom. *Child Development, 64,* 572–585.

Lyons–Ruth, K., Connell, D. B., Grunebaum, H., & Botein, S. (1990). Infants at social risk: Maternal depression and family support services as mediators of infant development and security of attachment. *Child Development, 61,* 85–98.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized-disoriented during the Ainsworth Strange Situation. In M. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research and intervention* (pp. 161–184). Chicago: University of Chicago Press.

O'Connor, M., Sigman, M., & Brill, N. (1987). Disorganization of attachment in relation to maternal alcohol consumption. *Journal of Clinical and Consulting Psychology, 51,* 831–836.

Park, K. A., & Waters, E. (1989). Security of attachment and preschool friendships. *Child Development, 60,* 1076–1081.

Pedersen, D. R., & Moran, C. (1995). A categorical description of infant–mother relationships in the home and its relation to Q-sort measures of infant–mother interaction. In E. Waters, B. Vaughn, G. Posada, & K. Kondo–Ikemura (Eds.), *Caregiving, cultural, and cognitive perspectives on secure-base behavior and working models: New growing points of attachment theory and practice. Monographs of the Society for Research in Child Development, 60* (2–5, Serial No. 244, pp. 197–215).

Phillips, D. (1987). *Quality in child care: What does research tell us?* Washington, DC: National Association for the Education of Young Children.

Pianta, R. C., & Steinberg, M. (1992). Teacher–child relationships and adjusting to school. In R. C. Pianta (Ed.), *Beyond the parent: The role of other adults in children's lives. New Directions for Child Development, 57,* 61–80.

Pianta, R. C., Steinberg, M., & Rollins, K. B. (1995). The first two years of school: Teacher–child relationships and deflections in children's classroom adjustment. *Development and Psychopathology, 7,* 295–312.

Posada, G., Waters, E., Crowell, J., & Lay, K-L. (1995). Is it easier to use a secure mother as a secure base? Attachment Q-sort correlates of the adult attachment interview. In E. Waters, B. Vaughn, G. Posada, & K. Kondo–Ikemura (Eds.), *Caregiving, cultural, and cognitive perspectives on secure-base behavior and working models: New growing points of attachment theory and practice. Monographs of the Society for Research in Child Development, 60* (2–5, Serial No. 244, pp. 197–215).

Renken, B., Egeland, B., Marvinney, D., Mangelsdorf, S., & Sroufe, L. A. (1989). Early childhood antecedents of aggression and passive-withdrawal in early elementary school. *Journal of Personality, 57,* 257–281.

Rodning, C., Beckwith, L., & Howard, J. (1991). Quality of attachment and home environments in children prenatally exposed to PCP and cocaine. *Development and Psychopathology, 3,* 351–366.

Rogers, S. J., Ozonoff, S., & Maslin–Cole, C. (1993). Developmental aspects of attachment behavior in young children with pervasive developmental disorders. *Journal of the American Academy of Child & Adolescent Psychiatry, 32,* 1274–1282.

Rothbaum, F., Schneider–Rosen, K., Potts, M., & Beatty, M. (1995). Early parent–child relationships and later problem behavior: A longitudinal study. *Merrill–Palmer Quarterly, 41,* 133–151.

Sagi, A., Lamb, M., Lewkowicz, K., Shoham, R., Dvir, R., & Estes, D. (1985). Security of infant–mother, infant–father, infant–metapelet attachments among kibbutz reared Israeli children. In I. Bretherton & E. Waters (Eds.), *Growing Points of Attachment: Theory and Research. Monographs of the Society for Research in Child Development, 50* (1–2, Serial No. 209, pp. 257–275).

Spieker, S. J., & Booth, C. L. (1988). Maternal antecedents of attachment quality. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment.* Hillsdale, NJ: Erlbaum.

Sroufe, L. A. (1983). Infant-caregiving attachment and patterns of maladaption in preschool: The roots of maladaption and competence. In M. Permutter (Ed.), *Minnesota Symposium on Child Psychology* (Vol. 16, pp. 41–81). Hillsdale, NJ: Erlbaum.

Sroufe, L. A., Egeland, B., & Kreutzer, T. (1990). The fate of early experience following developmental change: Longitudinal approaches to individual adaptation in childhood. *Child Development, 61,* 1363–1373.

Teti, D., & Ablard, K. (1989). Security of attachment and infant-sibling relationship. *Child Development, 60,* 1519–1528.

Turner, P. J. (1991). Relations between attachment, gender, and behavior with peers in preschool. *Child Development, 62,* 1475–1488.

van Ijzendoorn, M. H., Sagi, A., & Lambermon, M. (1992). The multiple caregiver paradox: Data from Holland and Israel. In R. C. Pianta (Ed.), *Beyond the parent: The role of other adults in children's lives. New Directions for Child Development, 57,* 5–24.

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press

van Ijzendoorn, M. H., Vereijken, C., M. J. L., & Riksen–Walraven, M. J. M. A. (in press). Is the attachment Q-Sort a valid measure of attachment security in children? In B. E. Vaughn & E. Waters (Eds.), *Patterns of secure base behavior: Q-sort perspectives on attachment and caregiving.* Hillsdale, NJ: Erlbaum.

Vaughn, B. E., & Waters, E. (1990). Attachment behaviors at home and in the laboratory: Q-sort observations and Strange Situation classifications of one-year-olds. *Child Development, 61,* 1865–1973.

Waters, E. (1990). *Attachment Q set.* Unpublished manuscript, State University of New York, Stony Brook.

Waters, E., & Deane, K. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development, 50* (1–2, Serial No. 209, pp. 41–65).

Waters, E., Vaughn, B. E., Posada, G., & Konda–Ikemura, K. (Eds). (1995). *Caregiving, cultural, and cognitive perspectives on secure-base behavior and working models: New growing points of attachment theory and practice. Monographs of the Society for Research in Child Development, 60* (2–5, Serial No. 244, pp. 197–215).

Wheeler, E., Seifer, R., Barends, N., Thomas, K., Milano, D., & St.-Andre, M. (in press). Attachment, maternal sensitivity, and social competence in preschoolers: A Q-Sort approach. In B. E. Vaughn & E. Waters (Eds.), *Patterns of secure base behavior: Q-sort perspectives on attachment and caregiving.* Hillsdale, NJ: Erlbaum.

Whitebook, M., Howes, C., & Phillips, D. (1990). *Who cares? Child care teachers and the quality of care in America.* Final report of the National Child Care Staffing Study. Oakland, CA: Child Care Employee Project.

https://doi.org/10.1017/S0954579499002047 Published online by Cambridge University Press