

Articles

The Uniqueness of the Child–Father Attachment Relationship: Fathers’ Sensitive and Challenging Play as a Pivotal Variable in a 16-year Longitudinal Study

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Abstract

This longitudinal study of forty-four families explored fathers’ as compared to mothers’ specific contribution to their children’s attachment representation at ages 6, 10, and 16 years. In toddlerhood, fathers’ and mothers’ play sensitivity was evaluated with a new assessment, the sensitive and challenging interactive play scale (SCIP). Fathers’ SCIP scores were predicted by fathers’ caregiving quality during the first year, were highly consistent across 4 years, and were closely linked to the fathers’ own internal working model of attachment. Qualities of attachment as assessed in the Strange Situation to both parents were antecedents for children’s attachment security in the Separation Anxiety Test at age 6. Fathers’ play sensitivity and infant–mother quality of attachment predicted children’s internal working model of attachment at age 10, but not vice versa. Dimensions of adolescents’ attachment representations were predicted by fathers’ play sensitivity only. The results confirmed our main assumption that fathers’ play sensitivity is a better predictor of the child’s long-term attachment representation than the early infant–father security of attachment. The ecological validity of measuring fathers’ sensitive and challenging interactive play behavior as compared to infant proximity seeking in times of distress is highlighted. Findings are discussed with respect to a wider view on attachment in that both parents shape their children’s psychological security but each in his or her unique way.

Keywords: attachment; toddler–father relationship; toddler–mother relationship; play sensitivity; attachment representation

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Though not necessarily a challenge for attachment theory, infant–father attachment has turned out to be challenging for attachment research. Attachment theory presents both parents as attachment figures. ‘A young child’s experience of an encouraging, supportive, and cooperative mother, and a little later father, gives him a sense of worth, a belief in the helpfulness of others, and a favorable model on which to build future relationships’ (Bowlby, 1982, p. 378). Concerning infants, Bowlby considered the father more a trusted play companion and a subsidiary attachment figure than a principal attachment figure (Bowlby, 1982). Thus, Bowlby saw the father as an attachment figure already in a different temporal as well as ecological light and secondary in importance compared to the mother as an attachment figure.

More than thirty years ago, the path-breaking work of Schaffer and Emerson (1964) provided evidence that the majority of infants formed an attachment to their fathers during their second year. The concept of exclusivity of infant–mother attachment did not reflect the social reality of infants in families. The study relied on maternal reports stating that by 18 months of age 75% of the infants protested separation from their fathers. In their naturalistic longitudinal studies, Lamb and co-workers found context-related as well as temporal infant–parent attachment behavior patterns. When both parents were present, distressed 12- and 18-month-olds turned to their mothers preferentially, whereas in other studies no comparable preferences were seen. In contrast, affiliative behavior measures in distress-free situations showed preferences for fathers throughout the first two years of life (see Lamb, 1997, for a review).

In Quest of the Meaning of the Strange Situation for Infant–Father Attachment Relationship

After enough evidence had accumulated that infants develop attachments to their fathers, subsequent studies focused on factors associated with fathers as attachment figures and their influence on children’s psychosocial development. These studies have been dominated by the same assessments used to study infant–mother attachment, tacitly assuming the same underlying developmental process for the formation of infant–father attachment as for infant–mother attachment. Studies using the Strange Situation procedure with infants and their fathers have looked, often in vain, for parallels to maternal tender loving care or caregiving sensitivity when searching for the origins of infant–father attachment security in the first year of the infant’s life. For example, van IJzendoorn and de Wolff (1997) subjected eight studies to a meta-analysis about paternal antecedents of father–infant attachment quality. Six of them resulted in nonsignificant findings. Thus, the overall strength of the association between paternal caregiving sensitivity during the first year and father–infant attachment quality was weak (.13) and considerably lower than the comparable finding for mother–infant dyads (.24). Since this meta-analysis, at least one additional study of 94 infant–father dyads has been published (Braungart-Rieker, Garwood, Powers, & Wang, 2001), again with nonsignificant findings. Discussing their own results on the development of infant–father attachment security, Volling and Belsky (1992) suggested that for the infant–father attachment relationship the Strange Situation procedure might not be as equally valid as it is in assessing the infant–mother attachment relationship (see also Belsky, 1999; Thompson, 1998, for recent reviews).

Correlates of infant–father attachment security were found to differ from correlates of infant–mother security. Aspects of fathers’ personality, marital harmony, low stress and support in both work and family were associated with infant attachment security to fathers (see Horn, 2000, for a review). The existing evidence suggests that quality of infant–father attachment relationship may be more closely associated with fathers’ motivational attitude towards fathering and family than it is to his observable sensitivity in interactions with their infants during the first year. Grossmann and Volkmer (1984) documented this relation for German fathers with respect to fathers’ participation in infant care.

Compared to the number of studies examining concurrent and longitudinal associations with infant–mother quality of attachment (see Cassidy & Shaver, 1999), relatively few studies focused on the consequences of infant–father attachment quality as assessed in the Strange Situation for the young child’s socioemotional development. Easterbrooks and Goldberg (1984) provided evidence that toddlers who were securely attached to their fathers would demonstrate more optimal behavior in problem-solving when compared to insecurely father-attached toddlers. Two studies provided evidence for a contemporaneous association between stranger sociability and infant security of attachment to the father (Lamb, Hwang, Frodi, & Frodi, 1982; Sagi, Lamb, & Gardner, 1986), but this relation was not found in other studies (Belsky, 1999).

Longitudinal studies examining the relations between infant–mother and infant–father security of attachment as assessed in the Strange Situation and later social competencies documented only weak or no significant effects of infant–father security of attachment. In the study by Main, Kaplan, and Cassidy (1985), infant–father patterns of attachment predicted the children’s attachment-relevant behaviors at age 6 in only two of the six assessments significantly, and in one of them the relation was much weaker than for the infant–mother quality of attachment. Other studies examining longitudinal predictions from infant–father attachment to aspects of personality development (Oppenheim, Sagi, & Lamb, 1988), to children’s understanding of mixed emotions at the age of 6 (Steele, Steele, Croft, & Fonagy, 1999), or to pre-school children’s emotion regulation with a distressed sibling (Volling, 2001), did not find any significant relationship to infant–father attachment assessed earlier in the Strange Situation. Again other studies suggested that the best prediction for later psychosocial functioning of the children was derived from infant–mother *and* infant–father attachment combined (Belsky, Garduque, & Hrcncir, 1984; Easterbrooks & Goldberg, 1990; Suess, Grossmann, & Sroufe, 1992).

In sorting out these diverse and sparse findings, Lewis (1997) concluded that the effects of father–infant attachment are either more complex than expected, or that the collective results need further exploration. In sum, in contrast to the multitude of findings regarding robust longitudinal associations between security of infant–mother attachment as assessed in the Strange Situation Procedure (SSP), this measurement of infant–father attachment quality has not yielded a comparable amount of evidence for its longitudinal validity. Because it is incontestable that the child–father attachment relationship is important for child development (see Hewlett, 1992; Lamb, 1997, for extended reviews), a different assessment of this relationship may be called for.

Widening the View on Child–Father Attachment Relationship Assessments

More than ten years ago, Ainsworth emphasized that ‘attachment theory as originated by Bowlby is an open-ended theory—open to extension, revision, and refinement through research’ (Ainsworth, 1990, p. 463). In their view of current challenges to attachment research, Waters and Cummings presented attachment theory as ‘a secure base from which to explore close relationships’ that can accommodate a wide variety of methods and findings (Waters & Cummings, 2000, p. 170). With new methods non-traditional pathways can be discovered from interactive experiences with close others to later representations of security in the child and adolescent.

Research into the ecology of fathering from an evolutionary as well as from a cross-cultural perspective has pointed to a number of essential differences between the experiences an average infant has with her or his father as compared to the experiences she or he has with the mother (Parke, 1995). In most cultures, including Germany more than 25 years ago, mothers provide most of the physical care and are responsible for the child’s health, whereas the main task of fathers is to secure the resources for the family. Thus, they are necessarily much less involved with their infants. When they do spend time with their infants, play has been found to be the most important interactional context in contrast to caregiving activities in all investigated European and non-European cultures (see Hewlett, 1992 and Lamb, 1997, for reviews). In addition, different characteristics seem to mark observable mother– and father–infant interactions. Fathers were found to show lower caregiving sensitivity than mothers, even in those exceptional families in which fathers were the primary caregivers of their infants for some period of time (Lamb, Frodi, Frodi, & Hwang, 1982) or both parents had equally little primary caretaking responsibilities for their infants as in Israeli kibbutzim (Sagi, Lamb, Shoam, Dvir, & Lewkowicz, 1985). Furthermore, fathers’ play is often reported to be more vigorous than mothers’ play (see Parke, 1995).

Lamb (1975) in his early review of studies on fathers as ‘forgotten contributors to child development’ depicted fathers as the link between the child and the outside world. Similarly, anthropologist Barry S. Hewlett (1992) emphasized the mediating role of the father as being almost universal when comparing it among various cultures, especially with sons. As active cultural transmitters fathers provide knowledge and advice, and provide the child with new experiences while serving as familiar companions to the child during these experiences. Similarly, Harkness and Super (1992), from their cross-cultural viewpoint, described the father’s role mainly but not exclusively as widening the experience of their children in their culture ‘through assimilation of discordant elements from the larger society into a harmonious orchestration of family life’ (Harkness & Super, 1992, p. 210). Thus, in most cultures, fathers are perceived to challenge the child’s competencies for adaptation to new elements of their culture as well as to their individual masculine style (Barton & Tomasello, 1994; Gottman, 1998). Lois Barclay Murphy added still another aspect to the challenging aspect of the child–father relationship, ‘Both in actions and in storytelling, fathers apparently sense that in the safety of their presence, it is satisfyingly exciting to children to hear and even do some things mothers would avoid as dangerous’ (Murphy, 1997, p. 9). Murphy’s statement highlights especially well that, optimally, fathers’ challenging behaviour should be tied to sensitivity in order to convey a sense of security while exploring new experiences, making them familiar to the child in the true sense of the word ‘familiar’.

Research investigating the impact of fathers on their children's psychosocial development (see Biller, 1993; Lamb, 1997; Booth & Crouter, 1998, for recent reviews) suggests that accessibility of the father, his positive engagement and supportive involvement, and his warmth and closeness to the child are the critical behavioral dimensions for the father–child relationship. Thus, attachment theory seems to be again the appropriate theoretical frame when a wider view is adopted (Grossmann, Grossmann, & Zimmermann, 1999). Bowlby pointed to two variables that influence an individual's later capacity to make affectional bonds: (1) the extent to which a child's parents provide him with a secure base, and (2) the extent to which they encourage him to explore from it (Bowlby, 1979, p. 136; again emphasised by Waters & Cummings, 2000). In view of the ecology of fathering, fathers may play an especially salient role in supporting the exploratory side of the child's attachment development as well as providing psychological security during joint explorations and play.

Expanding the Approach Towards Assessments of Toddler–Father Attachment: A Focus on Exploration and Challenges

Starting from the basic assumption of attachment theory, that a child will wander between her secure base when her attachment system is aroused and will explore the world if not distressed (Ainsworth & Bell, 1974; Main, 1983), we ventured to test the following assumption: A major aspect of the role of the father as an attachment figure might be to provide security through sensitive and challenging support as a companion when the child's exploratory system is aroused, thereby complementing the secure-base-role of the mother as an attachment figure. The major aspect of the mother's role as an attachment figure has been shown to provide security when the child's attachment system is aroused. This viewpoint does not imply that both parents could not serve both roles, as in fact they often do. However, this perspective on parental roles does emphasize the two different ends of the attachment–exploration balance in children's behavior when mastering their developmental tasks.

Purpose of the Present Report

Being able to draw on earlier assessments (Grossmann, Grossmann, Spangler, Suess, & Unzner, 1985; Grossmann, K. E. & Grossmann, K., 1991) in which we had always included child–father interactions, the present report is the result of a recent analysis searching for the specificity of the toddler–father attachment relationship in a longitudinal perspective. Fathers' play behaviors with their toddlers was evaluated as an additional measurement of quality of the father–child attachment relationship beyond infancy. Using the same method of analysis, mothers' play with their toddlers was also evaluated. Data on infant qualities of attachment to both parents were available (Grossmann et al., 1985).

The following specific question guided the present analysis: which aspect of the toddler–father interactions and which aspect of the toddler–mother interactions will relate to their children's later attachment security? Antecedents and consequences of infant–father qualities of attachment, as assessed in the Strange Situation, will be compared to the antecedents and sequel of fathers' play sensitivity. In order to explore the posited differential roles of the parents, security of children's attachment representations at ages 6, 10, and 16 will be viewed as sequel to either aspect of the early child–father relationship in comparison to either aspect of the child–mother

relationship. We propose the following testable hypothesis: Fathers' sensitivity while also challenging their toddler during joint play is a unique and independent predictor of children's later security of attachment representation. Fathers' play sensitivity is an important predictor in its own right, which may or may not be related to infant–father pattern of attachment as assessed in the Strange Situation.

Methods

This report examines attachment data from the Bielefeld Longitudinal Study, an ongoing study of attachment and psychosocial development of children in families with no discernible risk at time of recruitment in 1976/77 (Grossmann et al., 1985). Most of the families were quite traditional in their division of labour, with almost all mothers responsible for home and children and with fathers providing the primary source of income. The data range from the children's birth to age 16. Among the various measures obtained at each age, the primary focus of this report lies in predicting children's attachment security at ages 6, 10, and 16. Data sources, coding schemes/measures, and variables used in the present report are summarized in Table 1.

Participants

Forty-nine families participated in the Bielefeld Longitudinal Study (Grossmann et al., 1985). The original sample consisted of 26 boys and 23 girls. Parents were recruited in the hospital and gave consent to participate just prior to the birth of the focal child (in 1976/77). All agreed to subsequent home visits. Participation of the families

Table 1. Data Sources, Coding Schemes and Measures, and Variables

Data Source	Coding Scheme and Measures	Variable
<i>Birth in a maternity hospital:</i>	Fathers' presence at birth	Present vs. not present
<i>Observation</i>		
<i>First year: Home visits</i>		
Observations of father–infant interactions	Fathers' sensitive responsiveness	Ratings of fathers' sensitive responsiveness
Interview with mother	Maternal report of father involvement and fathers' play quality	Scorings of fathers' involvement; ratings of reported fathers' play quality
Observations of mother–infant interactions	Ainsworth's Maternal Sensitivity Scale	Ratings of maternal sensitivity
<i>Age 12 / 18 months: University laboratory</i>	Strange Situation Procedure and coding scheme	Classification of Infant–mother quality of attachment (secure vs. insecure)

Table 1. *Continued*

Data Source	Coding Scheme and Measures	Variable
		Classification of infant–father quality of attachment (secure vs. insecure)
<i>Age 24 months: Home visit</i>		
Observations of joint play: Toddler with mother, toddler with father	Sensitive and challenging interactive play scale (SCIP scale)	Ratings of mothers' sensitive and challenging interactive play Ratings of fathers' sensitive and challenging interactive play
<i>Age 6 years: Home visit</i>		
Observations of joint play: Child with mother, child with father	Sensitive and challenging interactions during play (SCIP scale)	Ratings of mothers' play sensitivity Rating of fathers' play sensitivity
Picture guided interview with child	Separation Anxiety Test	Ratings of children's security of attachment representation
Interview with mother	Adult Attachment Interview	Classification of mothers' attachment representation (Valuing/secure vs. devaluing/insecure)
Interview with father	Adult Attachment Interview	Classification of fathers' attachment representation (Valuing/secure vs. devaluing/insecure)
<i>Age 10 years: Home visit</i>		
Interview with child	Attachment and Current Relationship Interview	Children's attachment representation: Security of attachment behavior strategy
<i>Age 16 years: Home visit</i>		
Interview with adolescent child	Adult Attachment Interview	Adolescents' attachment representation: Dimensional scores for secure, dismissing, and preoccupied

varied somewhat for each of the home visits over the period of 16 years, from 49 during the first year to 44 at age 16, but was never less than 42. Thus, the number of subjects available for cross-age analyses varies. The maximum number of subjects available for each analysis was used (range 37 to 49). Healthy pregnancy and German as the mother's native tongue were specific criteria for recruitment. About half of the infants were first-borns. Fifty-three percent of the families were rated lower-middle class, the rest middle class. Mean age of fathers at the time of birth was 29.6 years with a range from 19 to 46 years, mean age of mothers was 26.3 years, ranging from 18 to 42 years. Twenty-six fathers had completed comprehensive basic level education (10 years of education) and 16 had completed medium level education (11 years of education). Two fathers had a university degree by the time of their children's second birthday (9 years of high school plus 4–6 years of university education). Mothers' educational achievements were somewhat lower. Only one mother had a university degree (for details see Grossmann, K. & Grossmann, K. E., 1991). When the children were 2 years old all fathers but only four mothers were fully employed. Twenty-eight mothers were homemakers, the others worked part-time or only a few hours per week.

Procedure and Measures

Except for the birth observations in the hospital and the Strange Situation Procedures in the university observation room, all observations, interviews, and data collections in this study were done in the homes of the families. Independent collections of data were acquired by sending new research teams to the families at each subsequent visit with each new team being 'blind' to any of the previous data collected.

Parent Measures

Fathers' and Mothers' Quality of Caregiving During the First Year of the Infants' Lives. Fewer fathers than mothers could be directly observed. In order to use all information available, a comprehensive measure of fathers' involvement in caregiving and observable responsiveness during the first year was created, aggregating four sources that are considered to be origins of infant–father attachment (Belsky, 1999). All scores, two based on direct observations of fathers and two obtained from mothers' reports were standardized. Each of the four sources was assessed by a different coder. These were:

1. *Fathers' presence at birth.* Allowing fathers into the delivery room was not routine hospital practice as of 1976/77. However, fathers were allowed to be present upon the couples' insistence. Half of the fathers ($n = 24$) were present at birth.
2. *Fathers' sensitive responsiveness.* All interactions between any family member and the infant during the home visits at 2, 6, and 10 months were observed and recorded using Ainsworth's narrative reports method. Fathers' sensitive responsiveness during the episodes in which he interacted with the infant was rated using Ainsworth's 9-point rating scale of maternal sensitivity to the infant's communication (Ainsworth, Bell, & Stayton, 1974). Observation protocols revealed that most fathers interacted only with the infant when the baby was in a pleasant mood. The preferred activity of the fathers was physical play and, if the infant became distressed, most fathers would hand the infant to the mother. Infant–father interactions were rated for their smoothness and synchrony, infant's reaction to father's approaches, and father's empathy. However, because in most episodes, fathers did

not manage the distress of the infant by themselves, and because physical caregiving was observable only for some fathers, fathers' sensitive responsiveness could not be interpreted in the same way as maternal sensitivity in the sense of 'tender loving care' as coined by Ainsworth (see also Grossmann, K. & Grossmann, K. E., 1991, for a description of the father's role in Germany at that time). Thus, for each home visit fathers' sensitive responsiveness was rated on a separate five-point scale. Scores ranged from 1.00 to 5.00 with a mean of 3.60. Inter-coder reliability was established on 12 protocols from different visits. While allowing a one-point difference, reliability was established to be 92%. Scores were averaged over the visits (Wutz, 1985).

3. *Fathers' caregiving involvement during the first year.* This measure was based on mothers' reports. Fathers' involvement in infant care was scored according to the number of tasks performed with the infant and to the extent of their responsibility for these tasks. Scores ranged from 0 to 42, with a mean of 24.2.
4. *Fathers' reported play quality.* This measure was also derived from the interviews with mothers. Specifically, mothers were asked how often, how varied, and how harmoniously fathers played with the infant. Fathers' play quality as reported by mothers was rated on a three-point scale. Scores ranged from 1 to 3 with a mean of 2.21. Father involvement and fathers' play quality were scored and rated independently by different assessors. Inter-rater reliability was established using 12 protocols from different visits and resulted in a Kappa coefficient of .82 (Wutz, 1985).

Results of interviews with mothers were included in our index of fathers' caregiving because mothers' reports regarding their spouses' parenting quality was found to be predictive of the children's social accomplishments across 36 years (Franz, McClelland, & Weinberger, 1991). Fathers' composite caregiving indices reflect fathers' positive involvement with their infants during the infants' first year. The index comprises the father's presence at birth, his observed sensitive responsiveness, his reported caregiving involvement, and his reported play quality. Caregiving indices ranged between -1.48 and $+0.99$ ($M = .03$, $SD = .586$).

Maternal sensitivity during the first year was rated from narrative reports of each of the three home visits using Ainsworth's sensitivity scale (see Grossmann et al., 1985). The three maternal sensitivity ratings were averaged across the first year. Mean sensitivity scores ranged from 1.3 to 8.0 ($M = 4.7$, $SD = 1.74$).

Fathers' and Mothers' Sensitive and Challenging Interactive Play with Their Toddler at 24 Months. During a home visit around the toddlers' 2nd birthday, mothers and fathers were videotaped each for 10 minutes during free play with their toddlers with unfamiliar play materials. Forty-seven fathers and mothers participated. Two couples had separated during the previous year. Mothers were given colored, geometrically shaped wooden pieces and fathers were given play dough. A different material was given to fathers because by the end of the play session with mothers, most toddlers had lost interest in the wooden pieces. Although the different play materials for mothers and fathers may limit the comparability of the ratings between the two sessions, it did not affect the range of individual differences among mothers or fathers. The sessions were rated on the SCIP scale, a newly developed scale for parental sensitive, cooperative, and gently challenging behavior.

The scale Sensitive and Challenging Interactive Play Scale (SCIP Scale) was developed from videomaterial of different studies with 2- and 6-year-old children

(Kassubek, 1995). The 9-point SCIP scale describes parental behavior in a parent-toddler unstructured play interaction when (1) the toddlers' attachment behavioral system is not aroused by separation from the parent but instead the toddler is striving for autonomy and assistance in exploration, and (2) the type of play material is creative in a way that the toddler needs guidance, scaffolding, and teaching, yet there is no right or wrong solution. The SCIP Scale is based on the essential elements of Ainsworth's concept of sensitivity, cooperation (non-interference), and acceptance. It is applied to the sensitivity of challenges that are considered to foster the toddler's sense of efficacy and autonomy during efforts of coping. The concepts of maternal supportive presence and quality of assistance, as developed by Matas and co-workers (Matas, Arend, & Sroufe, 1978), have been integrated into the SCIP scale. Higher ratings on the SCIP scale include challenging the child to play in more mature ways. Parents who cooperate, take the child's point of view when explaining the material, provide information in accordance with the cognitive ability of the child, motivate the child, and make suggestions that are usually accepted by the toddler, are given a high score. A low score is given to parents who do not cooperate, ignore the toddler's bids for assistance, are intrusive, punitive, or insensitively pressing for achievement. (The SCIP scale is available in English from the first author.) Inter-rater agreement of 100% (allowing one point difference) was established for 12 parent-toddler pairs with a kappa of .95. Fathers' SCIP ratings ranged from 1 to 9 ($M = 5.0$, $SD = 1.74$). Mothers' SCIP ratings also ranged from 1 to 9 with a mean of 5.7 ($SD = 1.72$). SCIP ratings of fathers and mothers were done independently. Parental SCIP ratings at 24 months were not significantly associated with each other, $r(47) = .19$ (Kassubek, 1995).

Fathers' and Mothers' Sensitive and Challenging Interactions with their 6-Year-Old Child in a Construction Task. The 6-year-olds were observed with their fathers and mothers in a problem-solving task. This time, 42 fathers and 45 mothers agreed to participate. Each parent was given a pile of wooden building blocks and six photographs depicting various buildings, e.g., a house, a temple, a barn, or a stadium. Their task was to guide the child verbally towards constructing such a building without showing the picture to the child. Interactions were videotaped. Definition of parental play sensitivity with the 6-year-old child during this task was extended from the SCIP scale definition for the 2-year-olds. At the 6-year assessment, intrusiveness, impatience, ridicule, or explanations that were too complicated for the child, non-cooperation, or losing interest in the joint task were considered insensitive (Ekhardt, 1996). All interactions were rated on the 9-point SCIP scale for 6-year-olds. Fathers' ratings ranged from 1 to 9 with a mean of 4.95 ($SD = 1.62$). Mothers' ratings also ranged from 1 to 9 with a mean of 4.8 ($SD = 1.87$). Inter-rater agreement was established between the two assessors using 12 tapes of this sample and resulted in 95% agreement (kappa = .89). At the six-year assessment, mothers' and fathers' SCIP ratings were highly correlated, $r(42) = .58$, $p < .0001$, in contrast to the above reported ratings at 24 months (Ekhardt, 1996).

Parents' Inner Working Models of Attachment. During the home visits to the 6-year-olds, fathers and mothers were given separately an early version of the Adult Attachment Interview (Main, 1981, personal communication). The Adult Attachment Interview is a 60–90-minute semi-structured interview that is designed to tap adults' current mental representations of their childhood attachment experiences. It asks for attachment-related autobiographical memories from early childhood, probes for

general and specific descriptions of attachment relationships, inquires about current relationships with parents and other attachment figures, and the interviewees are asked to evaluate these memories from their current perspective.

Forty-five mothers and 38 fathers participated during this home visit. Seven fathers could not be assessed with the AAI due to various circumstances (e.g., two fathers did not speak German fluently, two were divorced, and three failed the appointments). Recordings of the interviews were subsequently transcribed and coded for subjects' inner working model of attachment with respect to valuing or devaluing attachment relationships according to a coding system developed by Fremmer-Bombik and others (see Grossmann, Fremmer-Bombik, Rudolph, & Grossmann, 1988). This coding system evaluates four criteria of security: support by at least one attachment figure, attachment feelings, reflections upon own attachment experiences and defensiveness against the interview. Resulting scores are categorized for their patterns of inner working models that value attachments (secure) and those that devalue attachment relationships (insecure). Reliability of the four criteria was high (between 80 and 99%, Grossmann et al., 1988). Validity of this scoring and classification system was shown by its significant association with maternal sensitivity to the infant during the first year, $r = .31$, $p < .05$, and a correspondence of 80% to infant–mother quality of attachment in the Strange Situation for 65 infants and their mothers (Grossmann et al., 1988). Significant correspondence between the two categories of valuing attachments and Main and Goldwyn's (1984, 1992) categories of secure vs. insecure attachment representation was established for two independent samples (73%, $\kappa = .48$, $p < .0001$, Zimmermann, Becker-Stoll, & Fremmer-Bombik, 1997). Twenty-two fathers were classified secure (valuing attachments) and 15 insecure (devaluing attachment relationships). Among the mothers, 25 were classified secure and 19 insecure.

Child Attachment Measures

Observations of Infant–Parent Attachment. Security of attachment was assessed in the standardised Strange Situation Procedure (SSP) at age 12 months with mothers and at age 18 months with fathers. A six-month time gap was considered appropriate to avoid negative memories of the experience in the infants (Ainsworth, Blehar, Waters, & Wall, 1978; Main et al., 1985). This procedure emphasises the infant's responses to mild stress induced by the novelty of the context and the departure of the parent. Attachment quality was derived by standard procedures (Ainsworth et al., 1978). Training of and reliability testing with the two assessors was done by Main. Reliability was high (94%). Results have been reported (Grossmann et al., 1985). Evaluations of infant disorganisation were not available at that time.

Security of Child Attachment Representations at Ages 6, 10, and 16. The Separation Anxiety Test (SAT, Klagsbrun & Bowlby, 1976) was administered to each 6-year-old child at home ($n = 44$; see Grossmann, K. E. & Grossmann, K., 1991, for details). This projective technique has previously been used in assessing children's working model of self (Bretherton & Munholland, 1999; Main et al., 1985; Solomon & George, 1999). Several studies have shown that children who are securely attached to their mothers (either in infancy or in contemporaneous assessments) respond to pictures illustrating parent–child separations in ways indicative of a secure working model of self and others, as compared to responses of children insecurely attached to their mothers (Bohlin, Hagekull, & Rydell, 2000; Main et al., 1985; Shouldice & Stevenson-Hinde, 1992; Slough & Greenberg, 1990).

The SAT features a series of six photographs or drawings of children undergoing mild and short or severe and longer separations. The test was administered as an interview to assess children's thoughts, feelings, and reported behaviors in response to the pictures. The sessions were videotaped and transcribed. Criteria for a secure internal working model of attachment at this age were based on Bowlby's notion that a child who is certain of his parents' acceptance and support is not only able to tolerate his ambiguous feelings about them, but is also able and confident that he/she can control those feelings without having to deny them (Bowlby, 1979). A rating scale for security in the SAT was developed based on Main and co-workers' work (Main et al., 1985). Security of children's overall response patterns was judged by the children's emotional openness, positive evaluation of the availability of supportive others, coherency of narrative, and developmentally appropriate coping behaviors. Children's overall security was rated on a 7-point scale. A high score was given if the child admitted feelings of fear, anger and/or sadness in response to severe separations but not to mild separations, if the non-verbal expressions were congruent with the contents of the verbal responses, and if the child volunteered a constructive solution for his situation. Relying on autonomous coping skills and, if necessary, asking trusted others for support are examples of such positive coping behaviors. The mean SAT security score was 3.32, range 1–7 (SD = 1.99). Inter-rater reliability was assessed on 20 interviews yielding a Kappa coefficient of .88 (Geiger, 1991).

At age 10, 43 families participated. The children were given the Attachment and Current Relationship Interview (ACRI, Scheuerer-Englisch, 1989; Grossmann & Grossmann, 1991; Zimmermann, Becker-Stoll, Grossmann, Grossmann, Scheuerer-Englisch, & Wartner (2000). This interview protocol asks about the children's daily experiences, their thoughts about the emotional availability of their parents and close others. Specifically, they were asked to describe their ways of dealing with social, emotional and academic challenges, their disappointments, and negative feelings such as feeling worried, sad, afraid, angry, rejected, and/or lonely. The interviews were transcribed and rated for children's reported attachment behavior strategies in emotionally distressing situations. A child's reported attachment behavior strategy was classified secure if distress was expressed openly towards the parents or other attachment figures and their comfort or help was sought and accepted. In addition to their parents children named grandparents and much older siblings as attachment figures. A child's behavior strategy was classified insecure if the child either avoided help from close others or could not think of any behavior strategy in response to distressing emotions. Children's overall security of attachment at age 10 was assessed on a 3-point scale. A rating of 3 ($n = 13$) was given, if the majority of reported strategies were relationship oriented. A rating of 2 was given if the majority of answers were ambiguous as to the strategy used or if no kind of strategy was dominating. A rating of 1 was given for a dominance of avoidant strategies. Inter-rater agreement was .86 based on seven interviews ($\kappa = .75$).

Forty-four adolescents participated at age 16 (Zimmermann, 1999). They were administered the Adult Attachment Interview (AAI, George, Kaplan, & Main, 1985). The attachment interviews were videotaped and transcribed. They were rated and classified using a German translation of the 100 items of the AAI-Q-Sort (Kobak, 1993) by two independent coders, each one having been trained by Main and Hesse and each one being uninformed of any previous findings about the families. Average inter-rater correlations between the two coders on the four dimensions was .78 (Spearman-Brown-formula, the standard with Q-Sort assessments, Block, 1978) with a range from

.61 to .91. Each subject's AAI-Q-Sort description was correlated with the three prototype sorts resulting in a continuous score for the dimensions secure, dismissing, and preoccupied representation of attachment. The correlation represents the subject's score on the particular dimension (Zimmermann, 1999).

Subjects rated high on the dimension secure value attachment relationships and regard attachment-related experiences as influential, but they are relatively independent and objective regarding any particular experience or any one relationship. Subjects rated high on the dimension dismissing tend to deny the importance of attachment relationships or attachment experiences and tend to disclaim any potential negative effects of parenting upon the self. A high score on preoccupation indicates an inappropriate and incoherent engrossment in attachment-relevant themes and narration. Scores on the dimension secure were highly negatively related to scores on the dimension dismissing, $r(44) = -.74$, $p < .001$. Scores on the dimension secure were unrelated to scores on the dimension preoccupied (Zimmermann, 1999).

Results

Overview

Results are presented in three main steps. First, the interrelations between the new measures of parental play sensitivity and traditional measures of attachment were examined for each parent separately. Second, relations between the four focal measures (infant–mother and infant–father quality of attachment, maternal and paternal SCIP scores) and children's security of attachment representation at the later ages were examined. Third, the relative contribution of infant–parent qualities of attachment and parental SCIP ratings to the children's security of attachment representations at ages 6, 10, and 16 was tested using hierarchical regression analyses.

Preliminary analysis revealed no gender differences in parental sensitivity or child attachment measures, with the exception of one of the four sources of the fathers' composite caregiving index. According to mothers' reports, fathers performed more caregiving tasks on their infants if the infant was a boy than if the infant was a girl. However, the composite caregiving index did not reveal any gender difference. Therefore, we combined gender groups for all further analyses.

Relations Between Attachment and Play Sensitivity Measures for Both Parents Separately

Intercorrelations between measures of the early infant/child–father relationship and fathers' internal working model of attachment are presented in Table 2. For this and all subsequent analyses, patterns of attachment as assessed in the SSP were grouped into secure versus insecure qualities.

No significant relation was found between fathers' composite caregiving index in the first year and infant–father security of attachment confirming the findings of the majority of studies examining this relation. However, fathers' composite caregiving index in the first year predicted fathers' SCIP score at 24 months. Separate analyses of the four sources that entered into the composite caregiving index (presence at birth, fathers' responsiveness, involvement in infant care, and play quality with his infant) revealed that fathers' presence at birth already predicted fathers' play sensitivity two

Table 2. Interrelations Between Longitudinal Measures of Child–Father Attachment, Play Relationship, and Fathers’ Attachment Representation

Measure	1	2	3	4	5
1. Fathers’ composite caregiving index, first year		.03	.32*	.30*	.43**
2. Infant–father SSP quality of attachment, 18 months			.25(*)	.17	.35*
3. Fathers’ play sensitivity (SCIP score), 24 months				.63***	.37*
4. Fathers’ play sensitivity (SCIP score), 6 years					.46**
5. Fathers’ attachment representation					

(*) $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.
(SSP = Strange Situation Procedure)

years later. The mean SCIP score of the fathers who were present at birth was 5.5, as compared to 4.2 for the fathers not present at birth ($p < .018$). Fathers’ presence at birth was unrelated to infants’ quality of attachment to father. However, it was significantly related to fathers’ internal working model of attachment. Two-thirds of the fathers with secure attachment representations had been present at birth, but only one-third of the fathers with insecure attachment representations. Results suggest that fathers’ presence at birth in 1976/77, when their attendance was optional, heralded fathers’ play sensitivity and indicated the value they placed on attachment relationships.

Fathers’ SCIP scores at two years were only marginally related to security of infant–father attachment six months earlier, confirming similar findings of Easterbrooks and Goldberg (1984). Qualities of attachment in the SSP were also not significantly associated with fathers’ SCIP scores when the child was 6 years old. However, observed fathers’ play sensitivity was very consistent across four years. This finding now extends previous findings for maternal caregiving sensitivity (Pianta, Sroufe, & Egeland, 1989) to fathers’ play sensitivity.

All child–father observational measures were associated with fathers’ internal working model of attachment. Compared to fathers who devalued attachments, fathers who valued attachments had also been more involved in infancy, had received significantly higher SCIP scores at the 2nd-year assessment and at the 6th-year assessment, and were more likely to have securely attached infants.

For the early infant–mother relationship, intercorrelations among the interactive measures are presented in Table 3.

Maternal sensitivity during the first year predicted quality of infant–mother attachment at 12 months as has been previously reported (Grossmann et al., 1985). However, in contrast to the findings for fathers, mothers’ play sensitivity (SCIP scores) at 24 months was only modestly predicted by maternal sensitivity during the first year. Furthermore, mothers’ play sensitivity was not stable across four years. Mothers who

Table 3. Interrelations Between Longitudinal Measures of Child–Mother Attachment, Play Relationship, and Mothers’ Attachment Representation (Pearson Correlations)

Measure	1	2	3	4	5
1. Maternal sensitivity, first year		.34*	.25(*)	.09	.31*
2. Infant–mother SSP quality of attachment, 12 months			.23	.19	.46**
3. Mothers’ play sensitivity (SCIP score), 24 months				.10	.09
4. Mothers’ play sensitivity (SCIP score), 6 years					.05
5. Mothers’ attachment representation					

* $p < .05$; ** $p < .001$.
(SSP = Strange Situation Procedure)

valued attachments had been more sensitive during the infants’ first year of life and were much more likely to have securely attached infants. However, mothers’ attachment representation failed to show any relationship to maternal play sensitivity at 24 months or at 6 years.

Relations Between Quality of Infant Attachment, Parental Play Sensitivity at 24 Months, and Child Security of Attachment Representation at Later Ages

Later measures of children’s security of attachment were the security scores in the SAT at age 6, children’s security score on the ACRI (Attachment and Current Relationship Interview) at age 10, and adolescents’ dimensional scores for security and dismissiveness in the Adult Attachment Interview at age 16. Infant–mother security of attachment showed significant relations to children’s security scores at age 6 ($r(44) = .49, p < .01$) and at age 10 ($r(43) = .37, p < .05$). Neither infant–mother nor infant–father quality of attachment was related to children’s dimensional scores for secure, dismissing or preoccupied attachment representation at age 16 (Zimmermann, Fremmer-Bombik, Spangler, & Grossmann, 1997). In comparison, security of infant–father attachment related significantly only to children’s SAT security score at age 6 ($r(43) = .30, p < .05$).

Regarding the impact of parental play sensitivity, mothers’ ratings on the SCIP scale at 24 months was not significantly associated with any measure of children’s security of attachment representation later on. In contrast, fathers’ ratings on the SCIP scale correlated significantly with the children’s security rating at age 10 ($r(43) = .31, p < .05$), and with their scores on the dimension security at age 16 ($r(44) = .37, p < .05$). Correspondingly, fathers’ SCIP scores were negatively associated with adolescents’ scores on the dimension dismissing, $r(44) = -.40, p < .01$. None of the early parent or child variables related meaningfully to the adolescents’ dimensional scores for pre-occupation in the AAI at age 16.

Predicting Children's Security of Attachment at the Later Ages

A series of hierarchical regression analyses was performed to examine the unique contribution of each predictor variable to children's measures of secure attachment representation at the later ages. In accordance with the age of the child at time of assessments, infant–mother quality of attachment was included first in the equation, infant–father quality of attachment was included as a second block, and mothers' and fathers' SCIP scores (both assessed at 24 months) were included contemporaneously into the third block. Prior analysis of variance revealed that there was no interaction effect between the independent variables. Results are presented in Table 4.

The first equation revealed that infant–mother as well as infant–father qualities of attachment but none of the SCIP scores predicted significantly children's SAT security score at age 6. Thus, 6-year-olds who responded to pictures of separation from parents in an emotionally open and competent way had shown a secure quality of attachment to both parents in the Strange Situation in infancy.

The second equation shows that infant–mother quality of attachment, entered again at step 1, and fathers' SCIP score, entered at step 4, yielded significant Beta values for ACRI security at age 10. Mothers' SCIP scores and infant–father quality of attachment did not contribute to this prediction. Thus, 10-year-olds who reflected a secure attachment strategy in the Attachment and Current Relationship Interview had been securely attached to their mothers in infancy and, as toddlers, had experienced fathers who were more sensitive and gently challenging during play. This result provides the strongest support for our hypothesis that mothers and fathers support their children's attachment development in unique ways.

The Beta values of the third equation indicate that only fathers' SCIP scores predicted the scores on the dimension secure at age 16. Adolescents receiving high values on the dimension secure in their attachment representation as assessed on the AAI have had fathers who had been more sensitive, responsive, cooperative, and appropriately challenging during play with their toddlers. The dimensional scores for dismissing were tested separately in a fourth equation, not shown in Table 4. Again, only early fathers' play sensitivity yielded a significant Beta value (Beta = $-.42$, $p < .01$). Neither infant–parent quality of attachment nor mothers' play sensitivity emerged in the latter two equations as significant predictors. Adolescents' scores on the dimension preoccupation could not be predicted by any of the early relationship variables.

Discussion

The findings of this longitudinal study support our wider view of attachment development (Grossmann & Grossmann, 1990; Grossmann et al., 1999). For fathers, though not for mothers, a measure of sensitivity that assesses emotional support and gentle challenges in a toddler–parent play situation was found to be a strong predictor of the child's attachment representation at ages 10 and 16. The standard assessment of infant–father quality of attachment in the SSP predicted the child's attachment representation at age 6 but not at ages 10 and 16. In contrast, infant–mother quality of attachment but not maternal play sensitivity predicted the child's attachment representation at ages 6 and 10. For this sample, neither infant–mother nor infant–father quality of attachment, as assessed in the SSP, nor mothers' sensitivity during play with their toddlers (SCIP score), predicted dimensions of adolescent attachment representation.

Table 4. Hierarchical Regression Analyses Predicting Child Attachment Representations at Ages 6, 10, and 16

Predictor Variables	Criteria											
	SAT Security, Age 6			ACRI Security, Age 10			AAI Security Dimension, Age 16					
	R	R ²	ΔR^2	β	R	R ²	ΔR^2	β	R	R ²	ΔR^2	β
Block 1; Step 1:												
Infant–mother SSP quality of attachment	.53	.28	.28***	.53***	.36	.13	.13*	.37*	.24	.06	.06	-.24
Block 2; Step 2:												
Infant–father SSP quality of attachment	.66	.44	.15**	.39**	.37	.13	.00	.03	.24	.06	.00	-.02
Block 3; Step 3 <i>plus</i> Step 4												
Mothers' play sensitivity (SCIP score)	.66	.44	.00	.06	.50	.25	.12 ⁺	-.08	.44	.19	.13 ⁺	-.12
Fathers' play sensitivity (SCIP score)				.00				.35*				.39*

Note: ΔR^2 = change in R²; β = Beta at final step.

+p < .10; *p < .05; **p < .01; ***p < .001.

(SSP = Strange Situation Procedure; SCIP = Sensitive and Challenging Interactive Play scale)

The Meaning of Sensitive and Challenging Interactive Play for the Child–Father Attachment Relationship

Fathers' play sensitivity seems to be as much a part of the child–father attachment system as maternal caregiving sensitivity is part of the infant–mother attachment system if attachment is conceived of as a balance between the infants' attachment and exploratory behaviors (Bowlby, 1979). The close association found between fathers' composite caregiving index during the first year and their ratings on the SCIP scale one year and even five years later paralleled the association between maternal sensitivity during the first year and infant–mother security of attachment. However, fathers' caregiving index did not predict infant–father security of attachment in the Strange Situation. This finding complements the majority of investigations that failed to document a significant effect of fathering behavior on infant–father attachment security (for a review of this issue see Belsky, 1999). A likely explanation may be that the Strange Situation assessment of attachment does not capture the specific qualities of the child–father ecology by emphasizing infants' responses to separation only. In this sample of German children growing up during the past 20 years in rather traditional families, fathers' longitudinal impact as a haven of safety for the infant after separation was less pronounced than the impact of their sensitively supporting and challenging the toddlers' exploration during joint play.

Further evidence for the pivotal role of fathers' play sensitivity within the child–father attachment relationship is its close association with the father's inner working model of attachment in this sample. Fathers who valued attachment relationships were found to be more sensitive, supportive, and appropriately challenging during play with their toddlers as well as with their 6-year-olds. Fathers' evaluations of their former attachment relationships as a child were also associated with infant–father qualities of attachment assessed in the Strange Situation. This finding converges with the findings of Steele, Steele, and Fonagy (1996) and others (see van IJzendoorn, 1995, for a review). Thus, fathers' sensitive and challenging interactive play with the young child may be viewed as an additional, albeit essential, assessment of the child–father relationship. The stability of fathers' play sensitivity across four years is additional evidence coherent with the premise of relative stable attachment relationships as formulated for the child–mother attachment relationship (Carlson & Sroufe, 1995; Thompson, 2000; Wartner, Grossmann, Fremmer-Bombik, & Suess, 1994).

However, in this study fathers' play sensitivity was not closely related to infant–father quality of attachment assessed in the Strange Situation. The contextual and conceptual difference between the two assessments may provide an explanation. The infant's behavioral strategy when coping with separation is central to the Strange Situation assessment, whereas parental sensitivity, support and gentle challenges of their child's exploratory play activity is central to the SCIP scale. Thus, fathers who play with their toddlers in a sensitive and gently challenging way may or may not be at the same time a haven of safety after separation to their toddlers.

The importance of context is also evidenced by the results of the regression analysis for security of the children's attachment representation at age 6 in the Separation Anxiety Test (SAT). Children's responses to picture-stories of separation were predicted by both infant–mother and infant–father attachment behavior patterns in the SSP. Both measures of attachment derive their classification of security from the children's responses to separations from parents, either real separations as in infancy or imagined separations at age 6. The SAT seems to reflect at the verbal level the

attachment behavior strategies seen in infancy with both parents. Main et al. (1985) and Shouldice and Stevenson-Hinde (1992) have documented this relation already for security of the child–mother attachment. In our study, the SAT security scores also reflected the infants' attachment behavior strategies to their fathers in the Strange Situation.

The Complementary Roles of Fathers and Mothers for their Children's Attachment Development

At age 10, children's reported attachment behavior strategies when feeling sad, angry, or upset were predicted by quality of infant attachment to mother and by father's play sensitivity eight years earlier. This set of results for the 10-year-olds provides the strongest support for a wider view of attachment. This finding suggests that the contribution of mothers and fathers to the child's attachment development might be different and complementary depending on the role each parent plays in the socialization of their children for a given culture. Early relations to both parents were found to be influential, albeit different aspects of their relationship. Please note the conceptual difference between the SAT and the Attachment and Current Relationship Interview (ACRI). The ACRI did not focus on separations but addressed a wide variety of the child's behavioral responses to current developmental tasks.

Our longitudinal findings for traditional families seem to point to a unique contribution of the father to the child's emotional security: fathers might contribute mainly by providing sensitive support during explorative play of their toddlers whereas mothers as primary caregivers might contribute mainly by providing comfort when the child is in distress. We interpret these findings in line with Bowlby's concept that psychological adaptation depends on emotional security with others in times of distress as well as during challenges (Bowlby, 1979).

For a more extended interpretation of our findings, we turn to our concept of 'secure exploration' (Grossmann et al., 1999). Parental sensitivity in response to their children's exploratory behavior will give the child a sense of security during challenging tasks. During exploration, novelty may also elicit wariness, fear, or withdrawal (Berlyne, 1960). The hallmark of an attachment figure's behavior that will foster emotionally secure exploration is, on the one hand, sensitivity to the child's emotional expressions, and, on the other hand, support, cooperation, appropriate scaffolding, and gentle challenges. Children's explorations seem to thrive during joint attention (Tomasello, 1999). Parental sensitivity to children's exploratory behaviors increases the opportunity for the child to concentrate, follow his/her curiosity, and master new skills in an emotionally unimpaired way. The secure-base concept differs from the secure-exploration concept in the role of the parents during the child's exploratory activity. The child returns to the secure base when wary or afraid. If, however, the parent accompanies the child as a stronger and wiser companion to its challenging tasks, sensitive support 'on the spot' makes turning away from the challenge superfluous.

Sensitivity to an infant's signals of distress as well as her emotional expression during exploration supports and encourages the full range of infant behaviors, ranging from seeking close bodily proximity to confident exploration, depending on the situation and the child's state of anxiety (Grossmann et al., 1999; Meins, 1997). Moreover, secure attachment behaviors together with secure exploratory behaviors are considered to develop into valuing attachment relationships in conjunction with

the mental freedom to explore. Valuing attachment and the freedom to explore a wide range of thoughts and feelings are inseparable components of a secure attachment representation, e.g., as assessed in the adult attachment interview (Main, 1995).

In this longitudinal study of children growing up in low-risk middle-class families, no relation was found between security of attachment to mother or father in infancy and security of attachment representation in adolescence. Although a number of published reports have documented significant relations between early infant–mother quality of attachment and security of adolescent attachment representation, several other investigations have failed to find such associations (see Thompson, 2000, for a review; Zimmermann *et al.*, 2000). The different results of these diverse studies cannot be fully accounted for at this time (Hesse, 1999). To our knowledge, only one other longitudinal study included infant–father quality of attachment but not fathers' play sensitivity as a source of variance contributing to children's later attachment representation. Results will be reported (Main & Hesse, in prep).

Is toddlerhood more salient for the child–father relationship than infancy? In infancy, physical tender loving care is essential. In all cultures, this is provided mainly by mothers (van IJzendoorn & Sagi, 1999) and is the basis for the first attachment formed by the infant. Although play is central to the child–father relationship (see our review in the introductory section), fathers' presence and increasing interactions with the infant also develops into an attachment relationship. At age 2, toddlers are viewed as developing a sense of agency and mastery (Erikson, 1959), and they show a growing independence from the constant presence of the mother and an increased interest in new social relationships. Parallel, most fathers become more regularly involved with their toddlers as compared to the infancy period (Lamb, 1997) when playful interactions and explorations become more salient for the child. It seems that at this age, rather than in infancy, fathers' play sensitivity, being supportive and gently challenging, is especially timely and, therefore, has the longitudinal impact found here.

Limitations and Strengths

There are a number of limitations to this study including cultural, time and cohort related limitations, the relatively small sample size, and methodological shortcomings that were prompted by its naturalistic design as well as by its 'age'.

The families of this study came from the northern part of Germany and were recruited in the mid-1970s. At this time, the role and task division for fathers and mothers was quite traditional (Grossmann, K. & Grossmann, K. E., 1991). Thus, the findings presented here may not generalize to samples drawn from other parts of the world or to samples recruited today. For example, a major difference with young German parents today is that fathers' involvement in infant care is no longer voluntary but is usually required because, in the meantime, most young mothers have joined the workforce. Considering that the culture of their time did not require fathers' involvement during infancy, it is important to see that, nevertheless, fathers' early play sensitivity had the demonstrated influence on their children's attachment development.

The sample size is small and the number of fathers participating in all assessments is sometimes still smaller. It was a strength of the study, however, that the great majority of fathers recruited at the birth of the child participated continuously over 16 years. Moreover, direct observations of father–child interactions comprised the majority of

assessments in infancy and childhood in contrast to other long-term follow-up studies that relied on maternal or paternal reports only (Franz et al., 1991; Snarey, 1993).

Two methodological issues have to be considered when interpreting the findings. First, the SSP was conducted at 12 months with mothers and at 18 months with fathers. However, when the study was started, Ainsworth et al. (1978) and Bretherton (1985) had reported stability of security of attachment as assessed in the SSP for infants between 12 and 18 months of age. Second, different play materials were given to mothers and fathers, and mother–toddler play was always observed first. This was prompted by the afternoon schedules of the families. However, there is no theoretical indication that the nature of creative play materials would affect the associations between security of infant attachment or parental play sensitivity to the children’s security of attachment representation at ages 6, 10, and 16.

A major strength of this investigation is its longitudinal nature. It allows us to explore formative implications of earlier experiences for the child’s development. Of course, our interpretation of the unique contribution of fathers through their play sensitivity needs replication in studies of samples in different cultural and temporal contexts. The meaning of early experiences within the family for the child’s later attachment development can be answered only in the frame of longitudinal designs that span the children’s lives to maturity. For this sample additional continuing influences of early parental sensitivity have been found, i.e., on the children’s partnership representation at age 22 (Grossmann, Grossmann, Winter, & Zimmermann, 2002).

In conclusion, children’s model of self as competent and worthy of help seems to derive from a wide variety of attachment experiences with each parent. We presented data showing that, in this sample of German children from non-risk families, mothers’ longitudinal influences seem to rest on their functioning as a haven of safety and a secure base from which to explore. In contrast, fathers’ formative influence was found in their functioning as a sensitive, supporting, and gently challenging companion during exploration ‘out there’. If and how parents share the two aspects of attachment, serving as a haven of safety *and* a trusted companion during exploration, and how these experiences are integrated into one or more inner working models of attachment will be a challenging task for future studies. The present study documents new aspects within the role of fathers as attachment figures by conceptualizing security of attachment within a broader framework of emotional security within a family perspective.

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