

V. Attachment in adolescence: A longitudinal perspective

Introduction and research questions

One focus of attachment research is on continuity of attachment *behavior* from infancy to childhood. Another related focus is on attachment *representation* as measured by the Adult Attachment Interview (AAI). It has been shown repeatedly that parents' attachment representations (Main) are closely related to infants' patterns of attachment behavior (Ainsworth). No study however, has yet shown longitudinally the developmental pathways from infancy and childhood attachment patterns to attachment representations in adolescence. In this study the following questions will be answered:

- 1) *Is there an influence of risk factors on adolescents' attachment representation?*
- 2) *Does mothers' attachment representation predict adolescents' attachment representation 10 years later?*
- 3) *Is there a continuity of attachment: a) from age 1 to age 16; b) from age 1 to age 10; c) from age 10 to age 16?*
- 4) *What are the influences on the development of an 'inner working model of self*

and others' (Bowlby) that can be seen in the: a) Pathways from infant attachment behavior to adolescent attachment representation in the Bielefeld Longitudinal Study?; b) Level of assessment of attachment?

Method

Subjects

In 1992/93 44 adolescents (22 girls, 22 boys) of the original 49 infants (90%) of the Bielefeld Longitudinal Study were visited at home. The visits took place around the 16th birthday.

Measures

Infants (Quality of attachment behavior)

Infants were seen in the Strange Situation (Ainsworth, Blehar, Water & Wall, 1978) with mother at the age of 12 months and with father at the age of 18 months (Grossmann, Grossmann, Huber & Wartner, 1981; Grossmann, Grossmann, Spangler, Suess & Unzner, 1985).

Parents, when children were six years old (Attachment Representation)

Adult Attachment Interviews (George, Kaplan & Main, 1985) were administered to both parents and rated by means of the Regensburg method for analyzing the AAI (Fremmer-Bombik, 1987; Grossman, Fremmer-Bombik, Rudolph & Grossman, 1988).

Children (10 years)

42 Children were visited at home at the age of ten. Attachment Interviews were done with children and parents (Scheuerer-Englisch, 1989). Children's interviews were rated regarding: *Chil-*

dren's representation of parental emotional availability: This scale assessed the child's representation, whether the parents were available in emotional distressing situations (e.g., when sad or anxious), whether they noticed the child's feelings and whether they reacted appropriately. *Children's attachment strategies in emotional distressing situations:* This scale assessed the reported behavior-strategies when the child felt distressed (e.g., sad, anxious, helpless, angry). Answers were rated on an continuum from being avoid-ing (i.e., keep one's feelings within, retire into one's room, showing a happy face instead) to relationship-oriented (i.e., seeking support and comfort from par-ents).

Adolescents (16 years) (Attachment Representation)

Adolescents were interviewed with the Adult Attachment Interview (AAI) (George, Kaplan & Main, 1985). The interviews were rated by means of the Attachment Q-Sort (Kobak, 1993) by the first three authors. The method provides a continuous score for secure, dismissing, preoccupied and deactivation vs. hyperactivation. Risk factors were assessed with a checklist including parental divorce or separation, loss of parents, close relatives or friends, mental and physical health of both parents and adolescents. In addition, information on mal-treatment was included from the AAI (Zimmermann, 1994).

Results

General information: The distribution of AAI classification at age 16 was N=22

(50%) secure and N=22 (50%) insecure, with no significant gender-difference.

1. Risk factors in development and at-tachment representation in adolescence

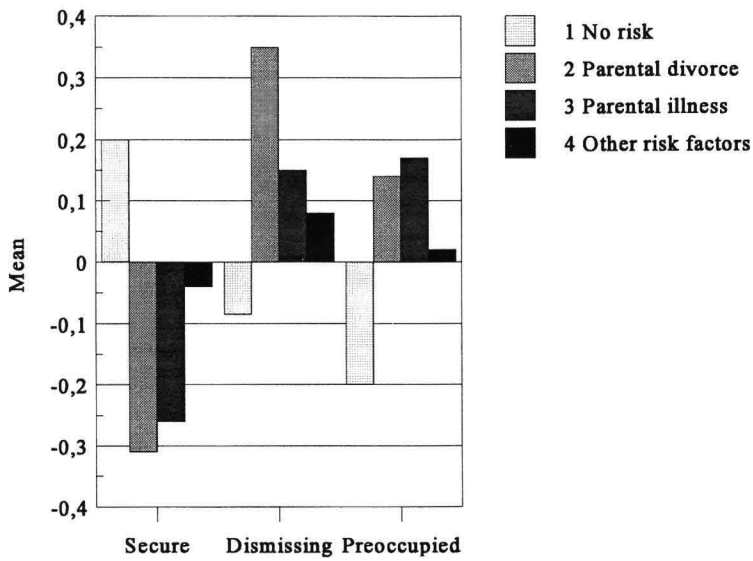
Juveniles were classified according to experienced risk factors as 1) No risk (N=24); 2) Parental divorce (N=11); 3) Parental illness (N=4), such as mental and life-threatening illnesses; 4) Other risk factors (N=5), such as loss of close relatives, maltreatment, severe accidents.

Risk factors were related to dismissing and to preoccupied attachment repre-sentations. Parental divorce or separation (N=11) which in most cases happened between 10 and 15 years of age, had a major impact on the development of an insecure attachment representation, espe-cially on the preoccupation dimension (Figure 1).

2. Intergenerational transmission of at-tachment representation

Table 1 reveals a significant relation be-tween mothers' attachment representa-tions and the attachment representation of their adolescent children. A 2x2 MANOVA (mothers' AAI x risk factors) with the three Attachment-Q-Sort dimen-sions (secure, dismissing, and preoccu-pied) as dependent variables reveals two main effects with $F(3,35) = 4.5, p < .01$ for mothers' attachment representation, and $F(3,35) = 14.6, p < .001$ for risk fac-tors.

Table 2a shows the *high predictability* from mothers' attachment representations to their adolescent children's attachment representations in the *absence of risk fac-tors*.



ANOVA with

risk status as factor: Secure: $F=3.3$, $p<.05$, Duncan ($p<.05$: 1>2; Dismissing: $F=2.0$, $p<.05$, Duncan ($p<.05$: 1<2; Preoccupied: $F=10.5$, $p<.0001$, Duncan ($p<.05$): 1<2,3,4

Fig. 1. Adolescents' attachment dimensions and risk status.

Table 1. Distribution of mothers' attachment representations and adolescents' attachment representations.

| Mothers' attachment representations | Adolescents' attachment representations | | N |
|-------------------------------------|---|----------|----|
| | Secure | Insecure | |
| Secure | 15 | 7 | 22 |
| Insecure | 5 | 14 | 19 |
| N | 20 | 21 | 41 |

(Concordance 71%; $\chi^2=7.2$, $p=.007$)

Table 2. Mothers' and adolescents' attachment representations for adolescents (a) without risk factors and with (b) risk factors.

a) no risk

| Mothers' attachment representations | Adolescents' attachment representations | | N |
|-------------------------------------|---|----------|----|
| | Secure | Insecure | |
| Secure | 11 | 1 | 12 |
| Insecure | 4 | 7 | 11 |
| N | 15 | 8 | 23 |

(Concordance 78%; $\chi^2=7.7$, $p=.005$)

b) with risk

| Mothers' attachment representations | Adolescents' attachment representations | | N |
|-------------------------------------|---|----------|----|
| | Secure | Insecure | |
| Secure | 4 | 6 | 10 |
| Insecure | 1 | 7 | 8 |
| N | 5 | 13 | 18 |

(Concordance 61%; not significant)

Whereas Table 2b shows a *lack of predictability* from mothers' attachment representations to their adolescent children's attachment representation in the *presence of risk factors*, mainly because of the effect on the side of adolescents with mothers with secure attachment representations.

3. Continuity of attachment from infancy to adolescence

3.1 Continuity from infant behavior to adolescent representation

There was no significant relationship between quality of attachment behavior to mother or to father in infancy and attachment representation of the same children at the age of 16 years (Table 3, Table 4). A MANOVA with the three attachment dimensions as dependent variables, and risk factors and attachment quality in infancy as factors showed a main effect for risk factors.

Table 3. Attachment quality to mother and attachment representation in adolescence.

| Attachment quality to mother in infancy | Attachment representation in adolescence | | N |
|---|--|----------|----|
| | Secure | Insecure | |
| Secure | 5 | 8 | 13 |
| Insecure | 16 | 14 | 30 |
| N | 21 | 22 | 43 |

(Insecure attachment: Insecure-avoidant, Insecure-resistant, Disorganized; $\chi^2=.8$; n.s.)

Table 4. Attachment quality to father and attachment representation in adolescence.

| Attachment quality to father in infancy | Attachment representation in adolescence | | N |
|---|--|----------|----|
| | Secure | Insecure | |
| Secure | 9 | 9 | 18 |
| Insecure | 12 | 12 | 24 |
| N | 21 | 21 | 42 |

(Insecure attachment: Insecure-avoidant, Insecure-resistant, $\chi^2=0$; n.s.)

There was no significant statistical interaction effect between risk factors and attachment quality towards parents in infancy.

3.2 Continuity and discontinuity of attachment from 1 year to 10 years

At the age of ten the children were interviewed about their representation of their parent's availability and about their reactions when distressed (sad, anxious or angry), or when experiencing problems (e.g., test anxiety, quarrel with parents). Figure 2 reveals that children who showed a secure behavior pattern towards mother in the strange situation reported

more relationship-oriented behavior when distressed, whereas children with an insecure attachment quality to mother in infancy reported more avoiding strategies when distressed. There were, however, no differences regarding reported behavior strategies in everyday problems. There also was no significant difference with respect to representation of mother as emotionally supportive and available. Attachment quality to father did not yield significant relations to children's reported behavior strategies or representation of father as emotionally supportive and available.

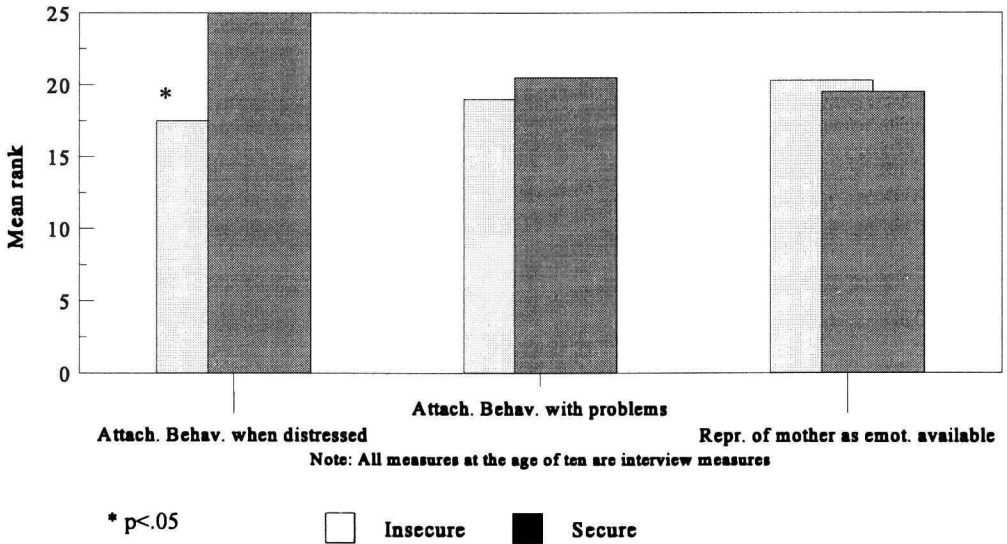


Fig. 2. Mean ranks of reported attachment strategies when distressed, when experiencing problems and representation of mother as emotionally available for 10-year-old children being securely and insecurely attached to mother in infancy.

Table 5. Correlations between attachment dimensions at 16 years and children's representation regarding parents' availability and children's attachment strategies at ten years for the whole sample (Total, N=41), and for those without parental divorce or separation (N=31).

| Attachment Interview at 10 years | | | | | | | | |
|----------------------------------|---|--------------------------|--------|--------------------------|-----------------------|--------------------------|------------------------------------|--------------------------|
| | Representation of parents' availability | | | | Attachment strategies | | | |
| | Mother | | Father | | Experiencing problems | | Experiencing Sadness, Fear & Anger | |
| Attachment-Q-sort at 16 yrs. | Total | without parental divorce | Total | without parental divorce | Total | without parental divorce | Total | without parental divorce |
| Secure | .18 | .49** | .13 | .50** | .13 | .38* | .15 | .29+ |
| Dismissing | -.29* | -.52** | -.22+ | -.51** | -.29* | -.47** | -.19 | -.31+ |
| Preoccupied | -.06 | -.38* | .01 | -.35* | .03 | -.37* | .00 | -.10 |
| Deactivation vs. Hyperactivation | -.29* | -.48** | -.22+ | -.45 | -.40** | -.56** | -.19 | -.30* |

p one-tailed; + p<.10; * p<.05; ** p<.01

3.3 Continuity of attachment from 10 years to 16 years

Table 5 shows the correlations between interview attachment measures at ten and the Adult Attachment Interview at 16 years. For the whole sample, a dismissing and deactivating attachment representation at age 16 can be predicted by the child's representation of mother as not emotionally available (as a statistical trend also for father) as well as by the child's avoiding strategy dealing with everyday problems (e.g., fear of test in school). Exclusion of the children who had experienced parental divorce or separation raised correlations notably: Secure attachment representation in adolescence is predicted from the representation of both parents as emotionally available and from strategies of seeking support from parents in emotionally distressing situations at the age of ten, if families had stayed together.

4. What are the influences on the development of an 'inner working model of self and others' (Bowlby)

4.1 Pathways of infant behavior and attachment representation in the Bielefeld longitudinal study from 1 to 16 years

Figure 3 shows the longitudinal relations between parents' and children's attachment measures of the Bielefeld study.

Our previous analysis revealed the relation between parents' attachment representation and infants' attachment quality (Grossmann, Fremmer-Bombik, Rudolph & Grossmann, 1988). Continuity was found from quality of attachment behavior to mother at 12 months and *narrated* relationship-oriented attachment strategies at ten years of age when distressed. There was however no relation between quality of attachment behavior in infancy and ten-year-olds' representation of parental availability and support in attachment-relevant situations. Continuity was found again on the *representational*

Pathways of attachment in the Bielefeld longitudinal study

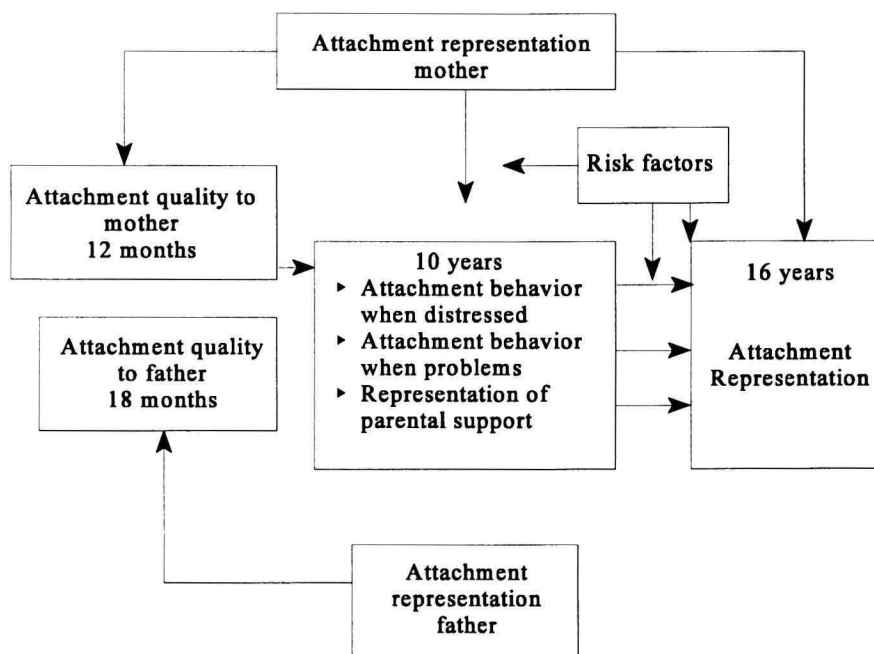


Fig.3. Results of the Bielefeld Longitudinal Study.

level from 10 years to 16 years (Table 5). Risk factors influenced adolescents' attachment representations as well as the continuity from 10 years to 16 years. There was a transmission of attachment representation from mothers to adolescents.

Parental divorce or separation diminished the relation between mother's attachment representation and the ten-year-olds' representation of mothers' support and emotional availability.

4.2 Assessment of attachment and continuity of attachment: from behavior in infancy to representation in adolescence.

The results of this study also lead to the question whether continuity of attachment from infancy to adolescence

depends on the level of measurement of attachment. Figure 4 shows the level of continuity of attachment in connection to the level of assessment of attachment. There is continuity on the attachment behavior level from 1 year (observed) to 10 years (reported), but not to the representational level. On the level of representation, however, there is continuity from 10 years to 16 years.

Discussion

The results show three major impacts on the development of specific attachment organizations in adolescence.

1. Critical life-events, like parental divorce or life-threatening illnesses of

attachment representation was influenced most by the experience of risk factors. This sheds new light on the development of this insecure attachment pattern.

II. Mothers' attachment representation is related to quality of attachment behavior in infancy as well as to the adolescents' attachment representations, but no continuity was found for the children themselves.

The intergenerational transmission of attachment from parents to child can be seen from mother's representation via her sensitivity to the infant's communications in attachment relevant situations (Ainsworth et al., 1978; Grossmann et al., 1985; Van IJzendoorn, 1995).

In the present study we found transmission on the representational level confirming the mothers' influence on their children's attachment organization in adolescence as well. In the Bielefeld study, mothers with secure attachment representations were seen by their ten-year-old children as more supportive and available (statistical analysis without juveniles who experienced parental divorce or separation). Conclusion: One pathway of intergenerational transmission of attachment in adolescence can be seen in the emotional availability of the mothers.

III. Continuity of attachment can be shown at the attachment behavior level from infancy to childhood, and at the representational level from childhood to adolescence.

a) Theory

The results enlighten Bowlby's concept that the determinants of development of an attachment organization are "the

experiences he (*an individual*) has with his attachment figures during his years of immaturity - *infancy, childhood and adolescence*" (Bowlby, 1983, p.41). The tenets of attachment theory regarding continuity were clearly formulated in Bowlby's first volume of the attachment trilogy:

"Thus, too much of prognostic significance must not be read into the statement that at the first birthday a couple is likely to have established a characteristic pattern of interaction. All that it means is that for most couples a pattern that is likely to persist is by that time present" (Bowlby, 1969, p.348).

"All recent evidence shows that any statement about a child of twelve months himself showing a characteristic pattern of attachment behaviour, distinct from the interactional pattern of the couple of which he is a partner, and implying some degree of autonomous stability, is certainly mistaken, and that the behavioural organisation of a child of that age is much less stable than is that of the couple of which he is the partner" (Bowlby, 1969.1982, p.349).

Bowlby did not expect stability of an infant's attachment organization without stability in the caregiving situation.

"There is ample evidence that during the first year or two the stability of attachment pattern thus far described is a property more of the couple in which the child is a partner than of the behavioural organisation within the child himself. As the months pass, however, the inner organisation of attachment with its working model of attachment figure, becomes ever more stable. As a consequence not only does it resist change but it does so increasingly" (Bowlby, 1982, p. 364f).

The development of internal working models of the attachment figures and of

oneself are reflections of one's experiences with the caregivers. Autonomous stability of these working models can be expected only after adolescence. Their development is dependent on the actual emotional availability of parents in the first years of life, and the expected parental availability until adolescence.

"...the period during which attachment behavior is readily activated, namely from six months to about five years, is also the most sensitive in regard to the development of expectations of the availability of attachment figures; but that nevertheless sensitivity in this regard persists during the decade after the fifth birthday albeit in steadily diminishing degree as the years of childhood pass" (Bowlby, 1973, p.202-203).

We consider the present study as a first step toward analyzing the transformation from ethological interaction in infancy to meaningfully interpretable inner working models in adolescence or adulthood.

b) Measurement

The data of this study show that continuity may also depend on the kind of measure of attachment. The continuity at the level of (observed or reported) *attachment behavior* can be seen from 1 year to 10 years. Infants who seek their mother in the Strange Situation are more likely to seek their parents' comfort and support in middle childhood. This can be seen as a kind of continuity at the level of procedural knowledge (what to *do* when feeling bad). The continuity at the *representational level* can be seen from 10 years to 16 years (reports of whether parents are available when needed). Children who represent their parents as supportive and available are more likely to have a

secure attachment representation in adolescence. This continuity may reflect the coherence of declarative knowledge, i.e., to proof the semantic memory with episodic memory ("be truthful, succinct, relevant and clear", see Main, 1991).

IV. The development of inner working models of self and the attachment figures in the Bielefeld Longitudinal Study shows lawful continuity and discontinuity.

The results demonstrate the plasticity of the developing attachment organization and the strong influence of life-events which change the interactional pattern of parents and children at least until adolescence. They also show that there is no simple continuity from attachment behavior patterns in infancy to the state of mind regarding attachment in adolescence. Stability as well as change in the development of working models of attachment are not by chance but are influenced and can be described in a lawful and theoretically clear way.

A replication if this study is presently prepared with our second longitudinal sample in Regensburg with emphasis on, so far, missing links between adolescents' attachment representations and behavior data. Main, Kaplan and Cassidy (1985) started the 'move to the level of representation'. The results of this study suggest a necessary 'move back' to the level of (attachment) behavior in order to see how one level influences the other.

References

Ainsworth, M.D.S., Blehar, M.D., Waters, E. & Wall, S. (1978). *Patterns of attachment. A psychological study of*

- the Strange Situation*. Hillsdale, NJ: Erlbaum.
- Ainsworth, M.D.S. (1990). Some considerations regarding theory and assessment relevant to attachments beyond infancy. In M.T. Greenberg, D. Cicchetti & C.M. Cummings (Eds.), *Attachment in the preschool years*. Chicago/London: University of Chicago Press.
- Block, J.H., Block, J. & Gjerde, P.F. (1986). The personality of children prior to divorce: A prospective study. *Child Development*, 57, 827-840.
- Bowlby, J. (1969). *Attachment and loss, vol. 1: Attachment*. New York: Basic Books.
- Bowlby, J. (1973). *Attachment and loss, vol. II: Separation: Anxiety and anger*. New York: Basic Books.
- Bowlby, J. (1982). *Attachment and loss (2nd ed.), vol. 1: Attachment*. London: Hogarth Press and Institute of Psycho-Analysis.
- Bowlby, J. (1988). *A secure base. Clinical applications of attachment theory*. London: Tavistock/Routledge.
- Fremmer-Bombik, E. (1987). *Beobachtungen zur Beziehungsqualität im zweiten Lebensjahr und ihre Bedeutung im Lichte mütterlicher Kindheitserinnerungen (Observations of attachment quality in the second year of life and its meaning with respect to maternal memories of her childhood)*. Dissertation, Universität Regensburg.
- George, C., Kaplan, N. & Main, M. (1985). An adult attachment interview. Unpublished manuscript, University of California at Berkeley.
- Grossmann, K., Fremmer-Bombik, E., Rudolph, J. & Grossmann, K.E. (1988). Maternal attachment representations as related to patterns of infant-mother attachment and maternal care during the first year. In R.A. Hinde & J. Stevenson-Hinde (Eds.), *Relationships within families*. Oxford: Clarendon Press, 241-260.
- Grossmann, K.E., Grossmann, K., Huber, F. & Wartner, U. (1981). German children's behavior towards their mothers at 12 months and their fathers at 18 months in Ainsworth's Strange Situation. *International Journal of Behavioral Development*, 4, 157-181.
- Grossmann, K., Grossmann, K.E., Spangler, G., Suess, G. & Unzner, L. (1985). Maternal sensitivity and newborns' orientation responses as related to quality of attachment in northern Germany. In I. Bretherton & E. Waters (Eds.), *Growing points in attachment theory and research*. Monographs of the Society for Research in Child Development, 50, 233-278.
- Kobak, R.R. (1993). *The Attachment-Q-Sort*. Unpublished manuscript.
- Main, M. (1991). Metacognitive knowledge, metacognitive monitoring and singular (coherent) versus multiple (incoherent) model of attachment: Findings and directions for future research. In C.M. Parkes, J. Stevenson-Hinde & P. Marris (Eds.), *Attachment across the life cycle* (pp. 127-159). London/New York: Tavistock/Routledge.
- Main, M., Kaplan, N. & Cassidy, J. (1985). Security in infancy, childhood and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points in attachment theory and research*. Monographs of the Society for Research in Child Development, 50, 66-106.

Scheuerer-Englisch, H. (1989). *Das Bild der Vertrauensbeziehung bei zehnjährigen Kindern und ihren Eltern: Bindungsbeziehungen in längsschnittlicher und aktueller Sicht. (Representations of trust-relationships in ten-year-olds and their parents: Attachment relationships in longitudinal and present perspective)*. Unpublished Doctoral Dissertation, Universität Regensburg.

Van IJzendoorn, M.H. (1995). Adult at-

tachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, 117, 387-403.

Zimmermann, P. (1994). *Bindung im Jugendalter. Entwicklung und Umgang mit aktuellen Anforderungen. (Attachment in adolescence: Development and coping with current demands)*. Unpublished Doctoral Dissertation. University at Regensburg.