

# Traits and Relationship Status: Stranger versus Peer Group Inhibition and Test Intelligence versus Peer Group Competence as Early Predictors of Later Self-Esteem

Jens B. Asendorpf and Marcel A. G. van Aken

Max-Planck-Institut für psychologische Forschung

ASENDORPF, JENS B., and VAN AKEN, MARCEL A. G. *Traits and Relationship Status: Stranger versus Peer Group Inhibition and Test Intelligence versus Peer Group Competence as Early Predictors of Later Self-Esteem*. CHILD DEVELOPMENT, 1994, 65, 1786–1798. A 9-year longitudinal study of 99 children observed from ages 4 through 12 showed that inhibition toward strangers was strongly related to inhibition with peers, and test intelligence to social competence with peers, only in the first months of preschool socialization. These correlations decreased later on. Stranger inhibition and test intelligence were not predictive of social self-esteem in middle childhood. However, high inhibition and low competence in the peer group after 1 and 2 years of group socialization did predict low social self-esteem up to age 10. Discussion focuses on the processes that might mediate these correlative relations and on the role of relationship-unspecific traits and relationship-specific individual attributes for later social-emotional developmental outcomes.

This study is concerned with the prediction of social-emotional developmental outcomes in middle childhood from early behavior patterns. It is guided by the idea that early predictors of social-emotional developmental outcomes vary in the extent to which they reflect the quality of children's social relationships and that this variation may be related to the long-term predictive power of the predictors.

Our first assumption is that early predictors of later developmental outcomes can be ordered on a continuum according to their "relationship specificity" (see Stevenson-Hinde, 1986, for a similar view). One extreme of this continuum is represented by trait approaches to personality development. Traits are constructs that are used to describe interindividual differences in behavior that show a substantial temporal stability and a moderate consistency across some specified class of situations (see Mischel & Peake, 1982). Trait approaches assume that traits are relationship-unspecific (e.g., a so-

cialable child is assumed to be sociable with all sorts of people). Trait taxonomies such as the Big Five model (Digman, 1990) refer to relationship-unspecific interindividual differences.

At the other extreme of the relationship specificity continuum are individual attributes that are entirely relationship specific, that is, that show no consistency across different interaction partners. Although complete relationship specificity may be difficult to find in human behavior, substantial relationship specificity has been demonstrated repeatedly in developmental research (e.g., infants' attachment to their mother vs. father; see Fox, Kimmerly, & Schafer, 1991).

Our second assumption is that highly relationship specific individual attributes have considerable predictive power for later social-emotional developmental outcomes if relationship-specific expectations are generalized to other relationships. Expectations can generalize to other relationships of the

The studies reported here were conducted as part of the Munich Longitudinal Study on the Genesis of Individual Competencies (LOGIC) funded by the Max Planck Society. Part of the work was supported by NATO grant 0467/86 to the first author and Kenneth H. Rubin. We wish to thank the children, parents, and teachers involved in this study for their cooperation, the members of the LOGIC group for their assistance in data assessment and coding, Ken Rubin, Jack Block, Wanda Bronson, and four anonymous reviewers for their comments on earlier drafts of this manuscript, and Caroline Bush for stylistic corrections. Correspondence should be addressed to Jens B. Asendorpf, Max-Planck-Institut für psychologische Forschung, Leopoldstr.24, D-80802 München, Germany.

same type (e.g., children develop the expectation that they are rejected by classmates *in general* when they have experienced serious rejection by *particular* classmates) and perhaps even to relationships of a very different type (e.g., children expect rejection by classmates because they experienced rejection by the mother).

If such generalization of expectations occurs, an individual attribute that was initially highly relationship-specific will become moderately relationship-specific, that is, more consistent across the relationships to which the expectations generalize, but still inconsistent with other relationships. The broader the generalization and the higher the emotional significance of one's expectations are, the more consequential these expectations may be for one's self-concept and self-esteem.

This view is similar to the notion of an internal working model of self and others found in attachment research (Bowlby, 1969; Bretherton, 1991) although it applies to every emotionally significant relationship and assumes that generalization occurs gradually and primarily within particular types of relationships.

Our third assumption is that children's peer relationships in the primary peer group such as the preschool or elementary school class are important predictors for social-emotional outcomes in middle childhood. Children develop relationships with particular classmates, acquire expectations about their behavior toward them, and tend to generalize these expectations to the whole peer group as well as to new groups of peers (e.g., from kindergarten to grade 1). Because of the high emotional significance of the primary peer group, these expectations influence children's emerging self-perception and self-esteem.

Perhaps the best empirical evidence for this view is provided by a recent Canadian longitudinal study. Rubin, Hymel, and Mills (1989) and Rubin (1993) found that observed passive social withdrawal in the kindergarten group (a high rate of constructive solitary activity) was concurrently associated with noncompliance and nonresponsiveness by the peers and predicted later low sociometric peer group status and internalizing difficulties such as low social self-esteem and high loneliness up to age 11, but not to age 14 (see Achenbach & Edelbrock, 1981, for internalizing difficulties).

In the present study we attempted to

predict children's internalizing difficulties in middle and late childhood from two kinds of individual attributes that appear to be moderately relationship-specific: their inhibition and their social competence in a highly familiar group of peers.

Evidence that inhibition in peer groups becomes relationship-specific to some extent during group socialization was provided by Asendorpf (1990). He related preschoolers' observed inhibited behavior in the classroom to the compliance of their peers when the children attempted to initiate contact with them. In the first months of preschool, no significant correlation was found, but in the second and third year, peer noncompliance significantly predicted inhibited behavior in the group. Asendorpf (1990) interpreted this finding by a relationship effect. When stable relationships in the classroom had been evolved in the second and third year in preschool, the children anticipated more or less peer compliance depending on the quality of their relationship with the particular peers and tended to act more inhibited if they expected that their social overtures would be ignored or rejected by the peers.

Social competence with peers in preschool also appears to become relationship-specific to some extent during group socialization. Rubin and Rose-Krasnor (1992) define social competence as the ability to achieve personal goals in social interactions while maintaining positive relationships with the interaction partners. Goal achievement in social interaction depends not only on relationship-unspecific traits such as intelligence or general social skills but also on the responses of the interaction partners which, in turn, depend upon the relationship of the actor to these partners. For example, the interaction among friends in preschool is characterized by a higher rate of successful social initiatives (Howes, 1987) and a higher rate of positive conflict outcomes such as compromises or positive post-conflict interaction (Hartup, Laursen, Stewart, & Eastenson, 1988) than the interaction among nonfriends.

There is a clear hierarchical relation between competence and inhibition in peer groups. Inhibition can be regarded as one specific incompetency that contributes to the higher-level construct of competence (see Waters & Sroufe, 1983, for a similar hierarchical notion of competence). Thus, inhibition and measures of peer group compe-

tence are expected to show low to moderate, but not extremely negative, correlations.

Most empirical studies have relied exclusively on sociometric techniques for the assessment of children's status in their early peer group (see Coie, Dodge, & Kupersmidt, 1990, for a review). Because the term "peer group status" is strongly associated with such sociometric assessments, we prefer referring to children's "relationship status" when we consider individual attributes that are high on the assumed dimension of relationship specificity.

As an outcome measure for mid-to-late childhood we chose children's social self-esteem because it is a central indicator of internalizing problems in mid-to-late childhood (Hymel, Rubin, Rowden, & LeMare, 1990) and because we expected a link between high inhibition and low social competence in the peer group and low social self-esteem in middle childhood.

Had we only correlated children's peer group competence and inhibition with their later social self-esteem, a predictive relation would not have told us very much about the role played by the peer relationships in this predictive relation. It could then be argued that the assessments of competence and inhibition simply reflected relationship-unspecific traits of the children and that these traits were the ones responsible for the predictive relation.

To exclude this alternative interpretation as much as possible, we contrasted two kinds of predictors for children's later self-esteem: their inhibition and competence after more than 1 year of group socialization, when the children had been given a fair chance to develop relationships with some of their classmates, and their inhibition and intelligence in laboratory assessments with unfamiliar persons. We assumed that the relationship-unspecific laboratory assessments would *not* predict children's later social self-esteem, but that the more relationship-specific assessments in the highly familiar peer group would. Thus, we used the laboratory assessments as "trait controls" for the preschool assessments.

This approach requires a demonstration that the laboratory-based trait measures do predict children's behavior in the preschool group *before* most of them have established relationships with their peers (thus, in the first months in preschool). Later, when children's behavior in the group reflects their

relationship status in addition to their relationship-unspecific traits, the correlation with concurrent laboratory trait measures should decrease. This decrease would indicate highly relationship-specific peer group assessments.

According to the results of various studies of Kagan and associates (e.g., Garcia-Coll, Kagan, & Reznick, 1984; Kagan & Moss, 1962; Kagan, Reznick, Snidman, Gibbons, & Johnson, 1988), inhibition toward strangers is moderately stable during childhood and moderately consistent across unfamiliar social situations. Thus, inhibition toward strangers should correlate with inhibition in a new group of peers. When children establish relationships with the group members, however, stranger inhibition should, according to our view, correlate less with inhibition in the peer group.

Social competence with peers with whom no relationship has been established is largely identical with general social problem-solving skills such as proper definition of the problem space, flexible implementation of strategies, and careful evaluation of the outcome of the problem-solving attempt (see Dodge, 1986; and Rubin & Krasnor, 1986). It can be expected that test intelligence—traditional verbal and nonverbal IQ tests—is related to these general social problem-solving skills and should therefore correlate with children's social competence to some extent (see Block & Block, 1980). Again, we assumed that this correlation decreases over group socialization, when children's success in social problem solving in the group is more and more codetermined by the quality of the relationships with their classmates.

First empirical evidence for an increasing relationship specificity of peer group inhibition was found by Asendorpf (1990, 1993) who longitudinally compared children's inhibition toward strangers with their peer group inhibition from the start of preschool through grade 2. Asendorpf (1990) found a decreasing consistency between stranger and peer group inhibition during 3 years of preschool socialization. Furthermore, Asendorpf (1993) found that stranger inhibition correlated again substantially with first graders' inhibition in the classroom; in Grade 2, however, the correlation dropped again strongly. We are not aware of studies that have similarly analyzed the long-term change of the consistency between IQ and social competence.

The present study extended Asendorpf's (1990, 1993) analysis of inhibition in three respects. First, we related high stranger inhibition and high inhibition in the second and third years of preschool to low social self-esteem at ages 8 through 12. Second, in an attempt to replicate and generalize the pattern of findings for inhibition, we correlated children's social competence in all 3 years in preschool with their nonverbal and verbal IQ as relationship-unspecific measures of competence, and related low IQ and low social competence in the second and third year in preschool to low social self-esteem at ages 8 through 12.

We did not expect effects of high peer group competence on social self-esteem because there is some evidence that self-esteem measures in middle childhood are less sensitive to positive as compared to negative self-esteem (Kagan, Hans, Markowitz, Lopez, & Sigal, 1982), which would attenuate the effects of high peer group competence. We did not expect effects of low inhibition on social self-esteem because uninhibited children are either high in social competence or high in aggression, and both groups appear to have an average social self-esteem: the high-competent group because of the insensitivity of the self-esteem assessment, and the aggressive group because these children do not seem to develop internalizing difficulties in middle childhood (see Hymel et al., 1990).

Third, to evaluate the domain specificity of the expected effects on children's later self-esteem, we assessed not only their social but also their cognitive self-esteem. We hypothesized that the social attributes of competence and inhibition would not be related to cognitive self-esteem. Instead, we assumed that children's cognitive self-esteem is predominantly based upon the feedback that children get in school on their academic achievement. Because preschool IQ is a major determinant of children's school achievement in elementary school, we expected a positive correlation between preschool IQ and cognitive—but not necessarily social—self-esteem.

## Method

### Subjects

This study used the same unselected longitudinal sample of 99 children (52 boys, 47 girls) that was also studied by Asendorpf (1990, 1993). All 99 children spent at least 3 years in preschool. Throughout this 3-year

period, 92% of the children attended the same class (mostly with the same teacher); every year the oldest third of the class was replaced by a new, youngest third. This is the normal preschool system in Germany; it allows for the development of long-term relationships among same-age classmates.

During the first 3 years, no children or parents refused to participate in the study; during the next 6 years, five children declined participation. Another 10 children dropped out from the study because they moved away from the Munich area. Because of the low systematic attrition rate of only 5% over 9 years, no attempts were made to control for subject attrition.

In the fourth year of the study, when children were 7 years old, 79 children attended elementary school, and 13 remained in kindergarten and began school a year later (a normal pattern for Germany). Late-entry pupils had a significantly lower IQ at age 6 than the other children,  $M = 94.8$  versus  $M = 105.4$ ,  $t(85) = 4.17$ ,  $p < .0001$ , but did not differ significantly in social or cognitive self-esteem at ages 8 through 12 years. Therefore differences in late school entrance are ignored in the following analyses.

In the ninth year of the study, when children were 12 years old, all children had left elementary school and attended either *Gymnasium* for high achievers (47 children) or *Hauptschule* for low achievers (37 children). Thus, all children experienced a second complete turnover of their peer group.

### Stranger Inhibition

At 4 and 6 years of age, the children were observed in the laboratory when they met with an adult stranger. The stranger approached the child in a standardized way (see Asendorpf, 1990, for details). A comparison of various behavioral and judgmental measures showed that the best behavioral indicator of the child's inhibition toward the stranger was the child's latency to the first unsolicited utterance directed at the stranger (see Asendorpf, 1992, for details). Inter-coder agreement for the latency scores was high for both assessments ( $r > .93$ ).

Concurrent with these behavioral assessments of stranger inhibition, a parent of the child completed an eight-item scale that referred to inhibition to unfamiliar adults and unfamiliar peers (internal consistency at age 4,  $\alpha = .95$ ; at age 6,  $\alpha = .93$ ; see Asendorpf, 1990, for more details). The

## 1790 Child Development

parental inhibition scale and the behavioral measure of inhibition correlated .67 at age 4 and .51 at age 6. The aggregate of a child's  $z$  transformed latency score and parental inhibition scale served as the measure of the child's stranger inhibition.

### *Test Intelligence*

Verbal intelligence was assessed with the German versions of the Wechsler scales for preschool children (4 years: HAWIVA; Eggert, 1978) or school-age children (7 years: HAWIK-R; Tewes, 1983). Nonverbal intelligence was assessed with the Columbia Mental Maturity Scale (Burgemeister, Blum, & Lorge, 1972) at 4 and 6 years of age. The verbal and nonverbal IQ scores had means ranging from 100 to 108 and showed moderate correlations between verbal and nonverbal IQ at similar ages (.42, 4 years; .38, 6–7 years). These correlations are somewhat lower than usual because the two tests were administered 3–6 months apart. Therefore correlational analyses were performed both for the overall IQ scores (aggregation of verbal and nonverbal IQ scores after  $z$  transformation; mean ages for the aggregated scores were 4 and 6 years), and separately for verbal and nonverbal IQ.

### *Peer Group Inhibition and Competence*

*Behavioral observation.*—At 4, 5, and 6 years of age, children's contact initiation behavior was observed for 8–12 10-min periods on at least 5 different days during regular free play periods in their preschool class. The observations took place 3–5 months after the beginning of each school year. An inhibited approach was coded whenever the child approached a single person or a group, stopped before reaching them, and looked at them for at least 3 sec without speaking. Success in contact initiation was coded whenever the partner responded positively to the initiation within 10 sec. Inter-coder agreement among the seven trained coders was checked each year by parallel observations; it was satisfactory for all 3 years of observation (see Asendorpf, 1990, for more details). The percentage of inhibited, or successful, initiations among all contact initiation attempts of a child served as the child's behavioral score for peer group inhibition, or competence.

*Teacher Q-sort.*—Concurrent with these behavioral assessments, the child's main preschool teacher provided a Q-sort description of the child's personality using a German 54-item version of the California Child Q-Set (Block & Block, 1980; Göttert &

Asendorpf, 1989). The correlation between each child's Q-sort profile and the prototypic Q-sort profile of a shy-inhibited child served as a teacher judgment of the child's peer group inhibition. This prototypic Q-sort had been provided by four German preschool teachers with high agreement ( $\alpha = .92$ ). Similarly, the correlation between each child's Q-sort and the prototypic Q-sort of a socially competent child served as a teacher judgment of the child's peer group competence. We used the Q-sort prototype from Waters, Noyes, Vaughn, and Ricks (1985).

The teacher judgments and the behavioral measures of peer group inhibition correlated .38 ( $p < .001$ ) at age 4, .23 ( $p < .05$ ) at age 5, and .33 ( $p < .005$ ) at age 6. For peer group competence, the correlations between judgments and behavior were .25 ( $p < .05$ ) at age 4, .04 (N.S.) at age 5, and .34 ( $p < .005$ ) at age 6. Because of the low correlations between the behavioral and the judgmental measures of peer group inhibition and competence, which seem to be due to the fact that the behavioral measures tapped only one particular aspect of peer group inhibition or competence, correlational analyses were performed both for overall peer group inhibition, or competence scores (aggregates of behavioral and judgmental scores after  $z$  transformation), and separately for the behavioral and the judgmental measures.

### *Social and Cognitive Self-Esteem*

At 8, 9, 10, and 12 years of age, children's domain-specific self-esteem was assessed with age-appropriate German versions of the Harter scales (Asendorpf & van Aken, 1993). At 8 years of age, the children individually completed the German version of the Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984). This scale includes six-item subscales for assessing children's social self-esteem ("peer acceptance") and cognitive self-esteem ("cognitive competence"); each item is rated on a four-point scale. The internal consistencies were acceptable for social self-esteem ( $\alpha = .81$ ) and cognitive self-esteem ( $\alpha = .72$ ).

At 9, 10, and 12 years of age, the children individually completed the German version of the Self-Perception Profile for Children (Harter, 1985). This scale includes six-item subscales for assessing children's social self-esteem ("social acceptance") and cognitive self-esteem ("scholastic compe-

tence"); each item is rated on a four-point scale. The internal consistencies were acceptable at all ages (for social self-esteem,  $\alpha = .76-.83$ ; for cognitive self-esteem,  $\alpha = .72-.81$ ) and were comparable in their item content with the pictorial sub-scales.

**Results**

*Decreasing Consistency between Laboratory and Peer Group Assessments*

The correlations between adjacent assessments of stranger and peer group inhibition are presented in Panel A of Figure 1; some of them were already reported by Asendorpf (1990). Stranger inhibition (an aggregate of a behavioral and a judgmental measure) showed a high stability between 4 and 6 years of age (for the composite score,  $r = .75$ ; for both the behavioral observation and the parental scale,  $r = .74$ ). Peer group inhibition was less stable (for the composite score,  $r = .44$ ; for the teacher Q-sort measure,  $r = .53$ ; for the behavioral observation,  $r = .30$ ). The difference between the stabilities of .75 and .44 was significant ( $Z^* = 3.15$ ,

$p < .005$ , according to Steiger's, 1980,  $Z^*$  test for differences between correlations in the same sample).

Stranger inhibition correlated substantially with peer group inhibition after a few months of group socialization, but less so in the second and third years in preschool (see Fig. 1). The drop from .47 to .23 in the concurrent correlation between stranger and peer group inhibition was significant,  $Z^* = 2.03$ ,  $p < .05$ . Both measures of peer group competence showed this decreasing relation with stranger inhibition. For the behavioral measure, the concurrent correlation dropped from an initial .53 to a final .13; for the judgmental measure, it dropped from .42 to .28.

The correlations for the assessments of test intelligence and peer group competence show a strikingly similar pattern (see Panel B in Fig. 1). Test intelligence (an aggregate of verbal and nonverbal IQ tests) showed a moderately high stability between 4 and 6 years of age (for the composite score,  $r = .61$ ; for verbal IQ,  $r = .53$ ; for nonverbal IQ,  $r = .51$ ). Peer group competence was less stable ( $r = .31$ ;  $Z^* = 2.80$ ,  $p < .005$ , for the

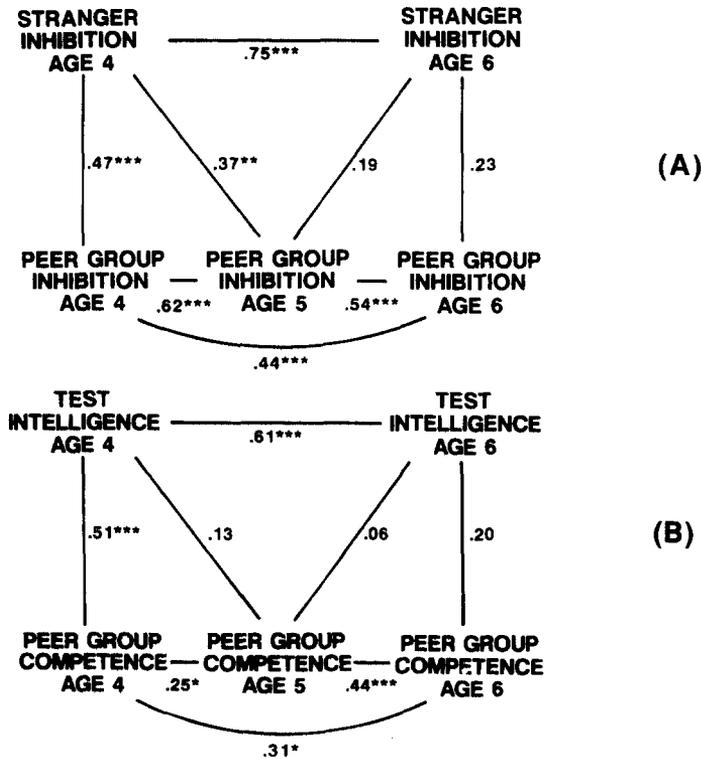


FIG. 1.—Zero-order Pearson correlations between adjacent assessments of inhibition (panel A) and competence (panel B). \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

difference between the stabilities of test intelligence and peer group competence).

Test intelligence correlated with children's peer group competence after a few months of group socialization but not in the second or third years of preschool (see Fig. 1). The drop in the concurrent correlation between test intelligence and peer group competence from .51 to .20 was significant,  $Z^* = 2.29$ ,  $p < .03$ . Both measures of peer group competence showed this decreasing relation with test intelligence. For the behavioral measure, the concurrent correlation dropped from an initial .32 to a final  $-.02$ ; for the teacher judgment, it dropped from .42 to .29. The same pattern was also found when the two IQ tests were analyzed separately (for verbal IQ, drop from .44 to .22; for nonverbal IQ, from .42 to .12).

These analyses show that the two relationship-unspecific traits correlated strongly with the associated peer group behavior only at the beginning of group socialization. After 1 or 2 years in the peer group, stranger inhibition no longer influenced peer group inhibition, and IQ no longer influenced peer group competence. This decreasing consistency was due to a major rearrangement of interindividual differences in children's peer group behavior; the interindividual differences in the laboratory assessments remained more stable.

#### *Long-Term Consequences of Early Inhibition and Incompetence*

The nonsignificant correlations between the relationship-unspecific traits and their associated peer group measures in the second and third years in preschool (see Fig. 1) made it possible to consider stranger inhibition and peer group inhibition, and test intelligence and peer group competence, as independent predictors of children's later self-esteem. Because our hypotheses were specific for low or high scores in the predictors, we chose an extreme group approach.

*Identification of extreme groups.*—Four measures were available both for stranger inhibition and for test intelligence (two at age 4 and two at age 6). Similarly, four measures were available both for peer group inhibition and for peer group competence in the familiar peer group (two at age 5 and two at age 6). For each predictor of later self-esteem, we defined children with low (high) scores by scores ranging in the lower (upper) tercile in the four assessments per predictor, allowing for one missing value.

The two groups of children with consistently high or low scores in a predictor were contrasted with a group of average children who had nonextreme scores in all four assessments of the predictor. Finally, we required that the children had nonmissing values in the assessments of self-esteem at ages 8 through 10. Table 1 contains the resulting number of children in the various groups. The group sizes were very similar across different predictors and highly symmetric with regard to high versus low scorers.

*Correction for a reference group effect on cognitive self-esteem at age 12.*—As usual in Germany, the children were tracked at age 12 in schools for low- and for high-achieving children. In the full LOGIC sample, the high achievers had a significantly higher cognitive self-esteem than the low achievers in the last assessment in elementary school at age 10,  $M = 3.04$  versus  $M = 2.73$ ,  $t(180) = 3.69$ ,  $p < .001$ , but had a virtually identical cognitive self-esteem at age 12,  $M = 2.79$  versus  $M = 2.76$ , producing a significant achievement  $\times$  age interaction,  $F(1, 179) = 9.70$ ,  $p < .003$ . This elimination of an initial advantage of high achievers' self-concept of ability is a well-known effect in Germany and is explained by the change in reference groups (Schwarzer, Lange, & Jerusalem, 1982).

To correct for this effect, we eliminated the achievement  $\times$  age interaction by adding to each high achiever's cognitive self-esteem at age 12 the mean difference of 0.31 between high and low achievers' cognitive self-esteem at age 10. No correction was necessary for social self-esteem because it showed no achievement  $\times$  age interaction ( $F < 1$ ).

*Long-term prediction of later self-esteem.*—Table 1 presents the means and standard deviations of the social and cognitive self-esteem scores for the 12 groups selected for low, average, or high scores in the four predictors. We performed 8 (extreme groups)  $\times$  2 (social/cognitive) = 16 mixed  $2 \times 4$  ANOVAs that each compared an extreme group with the associated average group across the four ages. The three degrees of freedom for the age effect were decomposed into a linear, a quadratic, and a cubic trend. The corresponding contrasts in age took the irregular spacing of the self-esteem assessments into account. Also, we separately tested the extreme group effect for the earliest assessment of self-esteem at age 8 by 16  $t$  tests (one for each ANOVA).

TABLE 1  
 MEANS AND STANDARD DEVIATIONS FOR SOCIAL AND COGNITIVE SELF-ESTEEM  
 OF GROUPS DIFFERING IN INHIBITION AND COMPETENCE

PRESCHOOL PREDICTORS	n	SELF-ESTEEM							
		Social at Age				Cognitive at Age			
		8	9	10	12	8	9	10	12 <sup>a</sup>
<b>Temperamental inhibition:</b>									
Low .....	9	2.83 (.44)	3.17 (.70)	2.94 (.85)	2.81 (.60)	3.41 (.44)	2.86 (.45)	2.85 (.76)	2.98 (.38)
Average .....	32 <sup>b</sup>	3.15 (.63)	3.20 (.51)	3.11 (.51)	2.91 (.47)	3.39 (.43)	3.13 (.54)	2.99 (.42)	3.00 (.40)
High .....	9	3.15 (.50)	3.13 (.60)	3.20 (.35)	3.13 (.25)	3.43 (.40)	3.13 (.42)	3.24 (.32)	2.92 (.39)
<b>Peer group inhibition:</b>									
Low .....	9	3.15 (.57)	3.24 (.82)	2.81 (.84)	2.91 (.76)	3.43 (.52)	2.65 (.64)	2.59 (.46)	2.75 (.51)
Average .....	31 <sup>b</sup>	3.23 (.52)	3.34 (.44)	3.25 (.55)	3.12 (.53)	3.39 (.37)	3.10 (.50)	3.14 (.48)	3.04 (.42)
High .....	9	2.78 (.79)	2.78 (.82)	2.87 (.75)	2.91 (.65)	3.31 (.44)	2.98 (.50)	2.94 (.50)	2.98 (.54)
<b>Test intelligence:</b>									
Low .....	10	3.10 (.53)	3.03 (.53)	3.05 (.67)	3.01 (.47)	3.13 (.58)	2.70 (.39)	2.72 (.48)	2.80 (.45)
Average .....	39 <sup>c</sup>	3.07 (.60)	3.22 (.63)	3.08 (.59)	2.93 (.58)	3.41 (.32)	3.00 (.48)	2.97 (.45)	2.97 (.43)
High .....	11	3.08 (.60)	3.30 (.45)	3.39 (.51)	3.29 (.20)	3.62 (.38)	3.08 (.31)	3.23 (.52)	3.12 (.33)
<b>Peer group competence:</b>									
Low .....	9	2.76 (.55)	2.81 (.70)	2.74 (.48)	2.97 (.43)	3.13 (.30)	2.89 (.42)	2.83 (.42)	2.80 (.27)
Average .....	35 <sup>b</sup>	3.22 (.56)	3.26 (.59)	3.15 (.68)	3.02 (.60)	3.46 (.42)	3.02 (.58)	3.11 (.45)	3.02 (.50)
High .....	10	3.12 (.67)	3.38 (.54)	3.19 (.36)	3.22 (.52)	3.33 (.36)	2.98 (.50)	2.88 (.51)	3.05 (.33)

NOTE.—Standard deviations in parentheses.

<sup>a</sup> Corrected for reference group effect (see text).

<sup>b</sup> At age 12, one child had a missing value.

<sup>c</sup> At age 12,  $n = 37$ .

On the basis of this information, we searched for two patterns. First, a constant effect on all four assessments of self-esteem would be detected by a significant group main effect in the ANOVAs. Second, an initial effect on the age 8 assessment which then steadily decreases would be detected by a combination of (a) a significant  $t$  test for the assessment at age 8 and (b) a significant group  $\times$  linear age interaction. Because a decrease rather than an increase is tested, a one-tailed  $t$  test for the corresponding contrast in the ANOVA is appropriate here.

Our a priori hypotheses can be formulated in terms of these two patterns. First, we had expected that high peer group inhibition would predict low social self-esteem. This was confirmed by a group main effect for high versus average peer group inhibi-

tion,  $F(1, 37) = 4.68, p < .04$ ; in addition, a marginal decrease of the group effect was found,  $t(37) = 1.37, p < .09$ , one-tailed, for the group  $\times$  linear age interaction. For high stranger inhibition, the group main effect and the group  $\times$  linear age interaction were not even marginally significant. The same lack of effect was found when high peer group inhibition and high stranger inhibition were related to cognitive self-esteem. Thus, our hypothesis for the effects of high peer group versus stranger inhibition on social versus cognitive self-esteem was fully confirmed.

The effects of high inhibition on social self-esteem are visualized in Panel A of Figure 2. The difference between the high-inhibited and the average groups are shown in terms of proportions of the standard devia-

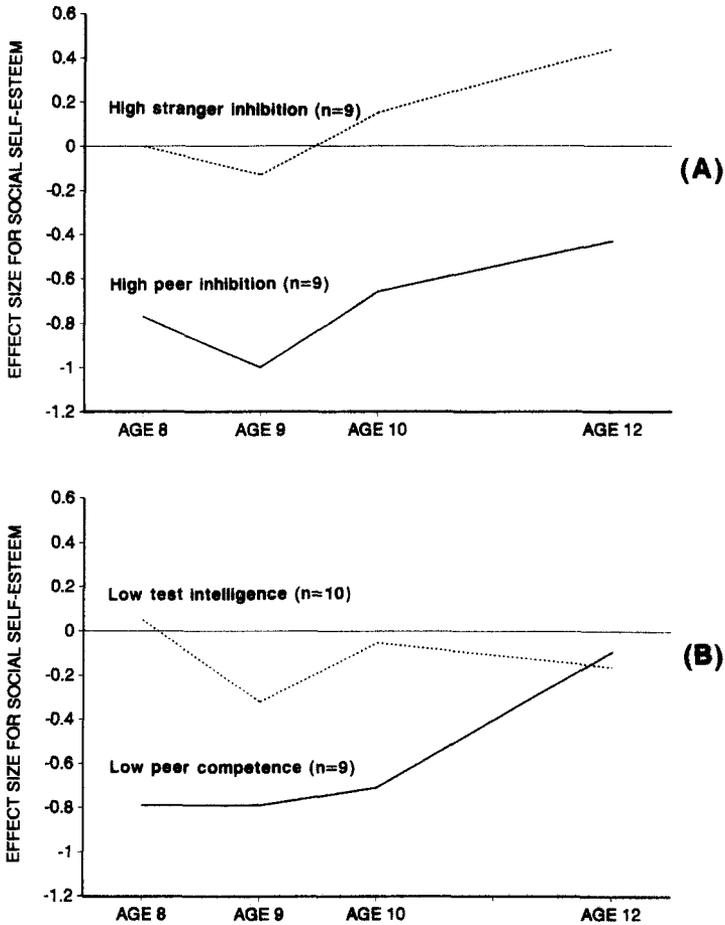


FIG. 2.—Effects of high inhibition (panel A) and low competence (panel B) on social self-esteem. Negative (vs. positive) effect sizes indicate that the children in the extreme groups had a lower (vs. higher) self-esteem than average children. Effect size = [mean(extreme group) - mean(average group)]/standard deviation (sample).

tions in the sample (effect sizes) which has the advantage that the effect sizes can be directly compared across age and measures because they are independent of the group sizes. Figure 2 shows that the effect of high peer inhibition was large at ages 8–10 and then decreased.

Second, we had expected that low peer group competence would predict low social self-esteem. The group main effect for low versus average peer group competence was only marginally significant,  $F(1, 41) = 3.52, p < .07$ . However, the data confirmed the second pattern of a decreasing group effect. Low-competent children had a significantly lower social self-esteem than average children at age 8,  $t(42) = 2.20, p < .04$ , and the group  $\times$  linear age interaction indicated a significant decrease of the effect,  $t(41) =$

1.92,  $p < .04$ , one-tailed. For low test intelligence, the group main effect and the group  $\times$  linear age interaction were not even marginally significant. Panel B in Figure 2 shows that the effect of low peer competence remained stable through age 10 and then decreased. Thus, our hypotheses for the effects of low peer group competence versus low test intelligence on social self-esteem was fully confirmed.

Third, we had expected that low (high) test intelligence would predict low (high) cognitive self-esteem. A group main effect for low intelligence,  $F(1, 47) = 4.49, p < .04$ , along with no group  $\times$  linear age interaction ( $F < 1$ ) confirmed the first part of the hypothesis, but high intelligence showed only a marginal group main effect,  $F(1, 48) = 2.96, p < .10$ , and also no group  $\times$  linear

age interaction ( $F < 1$ ). Thus, this hypothesis was significantly confirmed only for low versus average IQ.

Among the remaining tests, one significant unexpected effect was found. There was a group main effect for children *low* in peer group inhibition on *cognitive* self-esteem,  $F(1, 37) = 5.51, p < .03$ , along with a significant *quadratic* age  $\times$  group interaction,  $t(37) = 2.87, p < .01$ . Table 1 indicates that these children had a below-average cognitive self-esteem at ages 9 and 10 but not before or after. We do not have a plausible explanation for this pattern. All other group main effects and components of the group  $\times$  age interactions were not significant.

To summarize, high peer group inhibition and low peer group competence showed the expected effect on low social self-esteem in middle childhood, and a smaller effect in preadolescence, whereas the associated traits of stranger inhibition and low test intelligence had no effect on social self-esteem. Low IQ and low peer competence predicted low cognitive self-esteem. High IQ had only a marginal effect on high cognitive self-esteem. All these effects remained virtually unchanged when sex differences were controlled by analysis of covariance with sex as a covariate.

#### *Unique Contributions of Low Peer Group Competence and High Peer Group Inhibition to Later Self-Esteem*

The fact that both low peer group competence and high peer group inhibition predicted low social self-esteem could be due at least in part to an overlap of the two predictors. Indeed, three children were both low in peer group competence and high in peer group inhibition. Therefore we analyzed the concurrent relation between competence and inhibition in the peer group and explored the relative contributions of low competence and high inhibition to social self-esteem.

As expected, peer group inhibition (which can be considered one aspect of peer group incompetence) correlated negatively with peer group competence in all 3 years of preschool (first year,  $r = -.36, p < .002$ ; second year,  $r = -.10, N.S.$ ; third year,  $r = -.36, p < .002$ ). These correlations were low enough to treat competence and inhibition in the peer group as different predictors for later self-esteem.

To analyze the unique contributions of competence and inhibition to self-esteem,

two analyses of covariance were performed. One compared children low in peer group competence with the average group, treating peer group inhibition as a continuous covariate. The parallel analysis compared children high in peer group inhibition with the average group, treating peer group competence as a continuous covariate.

When peer group competence was partialled out, high peer group inhibition continued to show a marginally significant group main effect on social self-esteem,  $F(1, 36) = 3.73, p < .07$ . When peer group inhibition was partialled out, the effect of peer group competence on social self-esteem at age 8 remained significant,  $F(1, 41) = 4.14, p < .05$ , and the group  $\times$  linear age decrease for peer group competence remained marginally significant,  $t(40) = 1.58, p < .07$ , one-tailed. Thus, the effects of high peer group inhibition and low peer group competence on social self-esteem overlapped to some extent but also showed some independent contributions to later social self-esteem.

## **Discussion**

This study tested the hypothesis that young children's social behavior in stable groups of peers becomes relationship-specific to some extent with increasing group socialization and predicts important developmental outcomes beyond these relationships such as social self-esteem in middle childhood when the children attend different peer groups. This hypothesis was confirmed both for inhibition and for social competence with peers in preschool.

The relationship-specificity of individual differences in the peer group was demonstrated by using a "trait control" design. Relationship-unspecific traits, assessed in the laboratory with strangers, predicted concurrent individual differences in the preschool peer group at the beginning of group socialization but lost predictive power 1 and 2 years later. We interpret this decrease in predictive power as a result of the emergence of social relationships in the peer group; we assume that children's relationship status in the group exerted more and more influence on their behavior in the group, obscuring the effects of relationship-unspecific traits on their behavior.

This interpretation of the correlational findings is more convincing to us than the alternative hypothesis of an increasing differentiation of individual differences with increasing age because the effect has been

demonstrated in the same sample not only for the 3 years in preschool but also for the first 2 years in elementary school, at least for inhibition (Asendorpf, 1993). This replication of the effect cannot be explained by a general differentiation hypothesis.

However, it should be noted that our interpretation of the replicated correlational pattern rests on the assumption rather than the empirical proof that children's inhibited and competent behavior showed an increasing relationship-specificity during group socialization, and that this process was not completed in the middle term of the first year of preschool, when our first assessment in the peer group was scheduled. Thus, our interpretation is not conclusive but seems useful for guiding the direction of future studies.

The "trait control" design was also used to test the assumed effects of relationship-specific behavior on later social-emotional outcomes. High inhibition and low competence in the peer group after 1 and 2 years of group socialization predicted low social self-esteem in middle childhood up to age 10, that is, up to 4 years later, and after a complete turnover in the peer group, whereas high inhibition toward strangers and low test intelligence were not predictive of later social self-esteem. The effects of high inhibition and low competence in the peer group were rather independent and decreased after age 10 when all children experienced a second turnover of their peer group.

This decrease parallels Rubin's (1993) finding for the predictive effect of early passive withdrawal on later internalizing problems. The size of the effect was similar to the size of the effect of early IQ on later cognitive self-esteem throughout middle childhood; for preadolescence, it became somewhat weaker. As expected, low inhibition and high competence in the highly familiar peer group were unrelated to later social self-esteem.

What are the processes that mediate between early high inhibition or low peer competence, and later low social self-esteem? Our findings suggest that relationship-unspecific traits such as high stranger inhibition or a generally low intellectual ability do not play a major role. Our view is that the central mediating variable may be expectations about being ignored or rejected by classmates—a moderately relationship-specific individual attribute that tends to generalize from one peer group to the next

and negatively affects children's social self-esteem.

Low peer competence can be one major antecedent of peer nonacceptance. Thus, one pathway leads from low competence with peers through expectations of nonacceptance by the peers to low social self-esteem; the correlation between low peer competence and low social self-esteem in the present study reflects this pathway.

The relation between high inhibition in the peer group and low social self-esteem requires a more complex interpretation because inhibition can be both an antecedent and a consequence of expectations of peer nonacceptance. In the first case, children who faced nonacceptance *outside* of the preschool (e.g., rejection by parents) may overemphasize normal peer neglect and rejection, and develop negatively biased expectations of peer acceptance for future interactions, which, in turn, lead to inhibition in the peer group. In the second case, children who were neglected or rejected by their preschool peers for various reasons (e.g., physical abnormalities, ethnic minority status, poor social skills) may develop realistic expectations of peer nonacceptance and therefore react with inhibition in the group. Thus, the relation between high peer group inhibition and low social self-esteem can reflect two different pathways: one originating within the group and one outside of it.

These pathways to internalizing problems in middle childhood are similar, but not identical, to the pathways to internalizing problems described by Rubin, LeMare, and Lollis (1990). The major difference concerns the role of inhibited behavior in the peer group. For Rubin et al. (1990), inhibition is an antecedent rather than a consequence of poor peer relationships and is traced back to a temperamental trait that includes stranger inhibition. In contrast, we assume that this temperamental trait plays only a minor role in well-established peer groups and that inhibition in a highly familiar group predominantly reflects a history of poor social relationships inside or outside of the group.

Furthermore, we assume on the basis of our findings that stranger inhibition in the preschool years may not be a risk factor for internalizing problems in middle childhood, at least in a school system that provides children with a highly stable group of age-mates. This conclusion does not rule out the possibility that high inhibition toward strangers is a risk factor when children are frequently

faced with a complete turn-over of the peer group; in this case they may fail to develop satisfactory peer relationships because they have not had enough time to adapt to the new groups.

In contrast, children who are characterized by high peer group inhibition may profit from a change of the peer group; a fresh start in a new group may help them to develop better relationships with their peers (see Asendorpf, 1994, for a discussion of some practical implications of the distinction between inhibition toward strangers and in the peer group).

At a more general level, the results of the present study underscore the developmental significance of the early peer group. For more than one decade now, it has been pointed out that early peer relationships seem to serve important functions for later development (Hartup, 1983). Longitudinal relations between individual differences in early peer groups and later social-emotional developmental outcomes such as externalizing problems (Parker & Asher, 1987) or internalizing difficulties (Rubin et al., 1989) have been interpreted as support for the developmental significance of early peer relationships. The present study contributes to this research tradition.

But it does more than that. The possibility cannot be excluded that all these longitudinal findings simply reflect the effect of enduring, relationship-unspecific traits on development—traits that fully account for both the observed individual differences in the early peer group and the observed outcome in middle childhood.

In our view, the finding that relationship-unspecific traits did not predict later developmental outcomes, whereas the more relationship-specific attributes did so, provides more support for the developmental significance of the early peer relationships than the demonstration of only a predictive relation between peer group behavior and subsequent developmental outcomes.

At an even more general level we see some similarities between our results and the finding from attachment research that infants' attachment to their mother is predictive of developmental outcomes in preschool. Both in attachment research and in our study, individual differences in the behavior with highly important interaction partners predicted later social-emotional developmental outcomes. Could this be a general principle of development? And, if so, how specific are the mediating mechanisms

to each age period? These questions may stimulate future studies of personality development in childhood.

## References

- Achenbach, T. M., & Edelbrock C. S. (1981). Behavioral problems and competencies reported by parents of normal and disturbed children aged four through sixteen. *Monographs of the Society for Research in Child Development*, *46*(Serial No. 188).
- Asendorpf, J. B. (1990). Development of inhibition during childhood: Evidence for situational specificity and a two-factor model. *Developmental Psychology*, *26*, 721–730.
- Asendorpf, J. B. (1992). A Brunswikean approach to trait continuity: Application to shyness. *Journal of Personality*, *60*, 53–77.
- Asendorpf, J. B. (1993). Beyond temperament: A two-factorial coping model of the development of inhibition during childhood. In K. H. Rubin & J. B. Asendorpf (Eds.), *Social withdrawal, inhibition and shyness in childhood* (pp. 265–289). Hillsdale, NJ: Erlbaum.
- Asendorpf, J. B. (1994). Abnormal shyness in children. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, *34*, 1069–1081.
- Asendorpf, J. B., & van Aken, M. A. G. (1993). Deutsche Versionen der Selbstkonzeptskalen von Harter (German versions of the Harter self-concept scales). *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, *25*, 64–86.
- Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In W. A. Collins (Ed.), *Minnesota symposium on child psychology* (Vol. 13, pp. 39–101). Hillsdale, NJ: Erlbaum.
- Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic.
- Bretherton, I. (1991). Pouring new wine into old bottles: The social self as internal working model. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self processes and development. Minnesota symposium on child psychology* (Vol. 23, pp. 1–42). Hillsdale, NJ: Erlbaum.
- Burgemeister, B., Blum L., & Lorge, J. (1972). *Columbia Mental Maturity Scale*. New York: Harcourt Brace Jovanovich.
- Coie, J. D., Dodge, K. A., & Kupersmidt, J. B. (1990). Peer group behavior and social status. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 17–59). Cambridge: Cambridge University Press.
- Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. In M. R. Rosenzweig & L. W. Porter (Eds.), *Annual review of psychology* (Vol. 41, pp. 417–440). Palo Alto, CA: Annual Reviews.
- Dodge, K. A. (1986). A social information pro-

## 1798 Child Development

- cessing model of social competence in children. In M. Perlmutter (Ed.), *Minnesota symposium on child psychology* (Vol. 18, pp. 77–125). Hillsdale, NJ: Erlbaum.
- Eggert, D. (Ed.). (1978). *Hannover-Wechsler Intelligenztest für das Vorschulalter (HAWIVA)* (Wechsler intelligence scale for preschool children). Bern: Huber.
- Fox, N. A., Kimmerly, N. L., & Schafer, W. D. (1991). Attachment to mother/attachment to father: A meta-analysis. *Child Development*, *62*, 210–225.
- Garcia-Coll, C., Kagan, J., & Reznick, J. S. (1984). Behavioral inhibition in young children. *Child Development*, *55*, 1005–1019.
- Göttert, R., & Asendorpf, J. (1989). Eine deutsche Version des California-Child-Q-Set, Kurzform (A German short version of the California-Child-Q-Sort). *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, *21*, 70–82.
- Harter, S. (1985). *Manual for the Self-Perception Profile for Children* (Technical Rep.). Denver: University of Denver.
- Harter, S., & Pike, R. (1984). The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children. *Child Development*, *55*, 1969–1982.
- Hartup, W. W. (1983). Peer relations. In E. M. Hetherington (Ed.), P. H. Mussen (Series Ed.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social development* (pp. 103–196). New York: Wiley.
- Hartup, W. W., Laursen, B., Stewart, M. I., & Eastenson, A. (1988). Conflict and the friendship relations of young children. *Child Development*, *59*, 1590–1600.
- Howes, C. (1987). Peer interaction of young children. *Monographs of the Society for Research in Child Development*, *53*(1, Serial No. 217).
- Hymel, S., Rubin, K. H., Rowden, L., & LeMare, L. (1990). Children's peer relationships: Longitudinal prediction of internalizing and externalizing problems from middle to late childhood. *Child Development*, *61*, 2004–2021.
- Kagan, J., Hans, S., Markowitz, A., Lopez, D., & Sigal, H. (1982). Validity of children's self-reports of psychological qualities. In B. Maher (Ed.), *Progress in experimental personality research* (Vol. 2, pp. 171–211). New York: Academic Press.
- Kagan, J., & Moss, H. A. (1962). *Birth to maturity*. New York: Wiley.
- Kagan, J., Reznick, J. S., Snidman, N., Gibbons, J., & Johnson, M. O. (1988). Childhood derivatives of inhibition and lack of inhibition to the unfamiliar. *Child Development*, *59*, 1580–1589.
- Mischel, W., & Peake, P. K. (1982). Beyond déjà vu in the search for cross-situational consistency. *Psychological Review*, *89*, 730–755.
- Parker, J. G., & Asher, S. R. (1987). Peer relations and later personal adjustment: Are low-accepted children at risk? *Psychological Bulletin*, *102*, 357–389.
- Rubin, K. H. (1993). The Waterloo Longitudinal Project: Correlates and consequences of social withdrawal from childhood to adolescence. In K. H. Rubin & J. B. Asendorpf (Eds.), *Social withdrawal, inhibition, and shyness in childhood* (pp. 291–314). Hillsdale, NJ: Erlbaum.
- Rubin, K. H., Hymel, S., & Mills, R. S. L. (1989). Sociability and social withdrawal in childhood: Stability and outcomes. *Journal of Personality*, *57*, 237–255.
- Rubin, K. H., & Krasnor, L. R. (1986). Social-cognitive and social behavior perspectives on problem solving. In M. Perlmutter (Ed.), *Cognitive perspectives on children's social and behavioral development. Minnesota symposium on child psychology* (Vol. 18, pp. 1–68). Hillsdale, NJ: Erlbaum.
- Rubin, K. H., LeMare, L. J., & Lollis, S. (1990). Social withdrawal in childhood: Developmental pathways to peer rejection. In S. R. Asher & J. D. Coie (Eds.), *Peer rejection in childhood* (pp. 217–249). Cambridge: Cambridge University Press.
- Rubin, K. H., & Rose-Krasnor, L. (1992). Interpersonal problem solving and social competence in children. In V. B. van Hasselt & M. Hersen (Eds.), *Handbook of social development: A life-span perspective* (pp. 283–323). New York: Plenum.
- Schwarzer, R., Lange, B., & Jerusalem, M. (1982). Selbstkonzeptentwicklung nach einem Bezugsgruppenwechsel [Self-concept shift after a change of the reference group]. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie*, *14*, 125–140.
- Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin*, *87*, 245–251.
- Stevenson-Hinde, J. (1986). Towards a more open construct. In G. A. Kohnstamm (Ed.), *Temperament discussed* (pp. 97–106). Lisse, The Netherlands: Swets & Zeitlinger.
- Tewes, U. (1983). *HAWIK-R: Hamburg-Wechsler Intelligenztest für Kinder* [Hamburg-Wechsler Intelligence Scale for Children] (Rev. 1983). Bern: Huber.
- Waters, E., Noyes, D. M., Vaughn, B. E., & Ricks, M. (1985). Q-sort definitions of social competence and self-esteem: Validation of a behavioral index of social competence. *Developmental Psychology*, *19*, 550–560.
- Waters, E. E., & Sroufe, L. A. (1983). Social competence as a developmental construct. *Developmental Review*, *3*, 79–97.

