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## Sympathy in the context of mother-child and teacher-child relationships

### Abstract

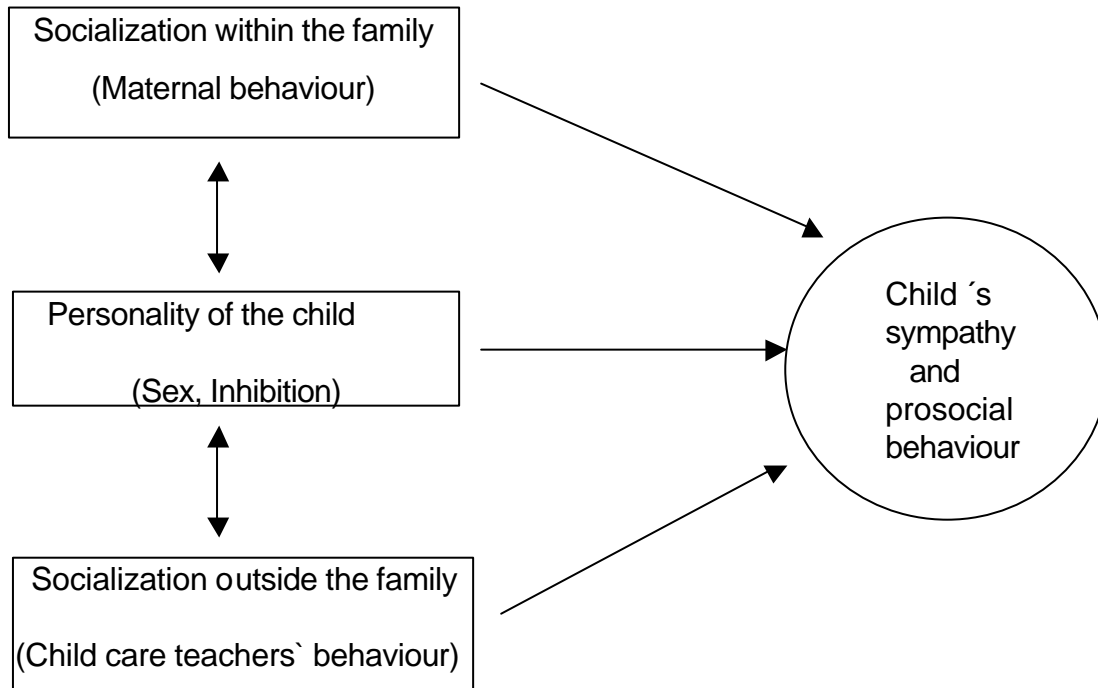
Two studies were carried out to investigate relations between socialisation influences, person variables, and sympathy, as well as prosocial behaviour in 5-year-old preschool children. Specifically, we were interested in the interactions between child characteristics (sex, inhibition toward strangers) and socialisation practices of child care teachers (Study I) and mothers' caregiving style (Study II). Participants in Study I were 105 five-year-old children who were confronted with the simulated distress of a puppet; 25 teachers were observed while interacting with the children during free play and 93 parents rated their child's inhibition. Participants in Study 2 were 79 five-year-old-children and their mothers. As in Study I, the children's reactions to distress were observed. The mothers rated their child's inhibition and participated in an interview to assess the quality of their caregiving style. Positive, albeit weak, relations occurred between child care teachers' warmth and children's sympathetic-prosocial reactions to distress; no direct effects emerged for maternal behaviour. Negative, albeit weak, associations were found between inhibition and sympathetic-prosocial reactions. These relations improved when interactions between sex, inhibition and the caregiving-style of the teachers (but not of the mothers) were taken into account. The results are discussed with regard to the context-specificity of socialisation.

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Key dimensions of the quality of social relationships are the individual's readiness to feel sympathy for a person in distress and the motivation to benefit a needy other. This readiness develops during childhood in the context of a network of relationships, where the child is not only being influenced but is also very much influencing others. Therefore, we decided to investigate relations between socialisation practices, personality variables of the child, and children's reactions to the distress of another person. Emotional responses, such as sympathy, are often accompanied, followed, or preceded by behavioural responses. Thus our focus is on both emotional (sympathy) and behavioural reactions (prosocial behaviour). We define sympathy as an emotional response that is elicited from the perception of another's emotional state and consists of feelings of sorrow or concern for the needy other. Prosocial behaviour is defined as voluntary behaviour intended to benefit another (Eisenberg & Fabes, 1998, p. 702).

According to Eisenberg & Fabes (1998, p. 756) research on prosocial development would profit from moderational designs that could be used to examine how child characteristics and socialising practices jointly predict children's sympathetic and prosocial responding (see also Ulich, 1996; Ulich, Kienbaum, & Volland, 1999). Similarly, Hinde and Stevenson-Hinde (1987) formulated a "relationships approach" that makes it necessary to "treat the child not as an isolated entity but as a social being, formed by and forming part of a network of relationships..." (p.1). In order to approach such a design we conducted a study that addressed different socialising relationships (mother-child, teacher-child) and different person variables of the child (sex, inhibition). We hypothesised different effects for different socialisation relationships, and we expected interaction effects between the child's personality and different interpersonal relationships. The assumptions and variables of the two studies are presented in Figure 1.



What do previous findings tell us about the impact of children`s personality, parental and child care teachers` styles on the development of sympathy and prosocial behaviour?

To begin with the former, it seems quite clear that the personality of a child plays a crucial role for emotional development, but, as Eisenberg and Fabes (1998) put it, "the role of the child`s characteristics in the socialisation process has been virtually ignored" (p. 724). In order to overcome these shortcomings, we included *inhibition toward strangers* (Asendorpf, 1993) as a dimension of the child`s temperament that describes the tendency of children to become inhibited when encountering a new environment, a novel object, or a stranger. Inhibition toward strangers is characterised by an approach-avoiding-conflict, that is, the children would like to communicate with the unknown person but are afraid to do so at the same time. We assumed that a child that is inhibited toward strangers and witnesses the misfortune of a relatively unfamiliar person should be more aroused than a non-inhibited child and therefore show less sympathetic-prosocial reactions, for he or she will be more concerned with coping with his or her own emotions than with the other person. Eisenberg et al., (1996) examined the relations of schoolchildren`s comforting behaviour to empathy-related reactions and shyness. They found that comforting was negatively related to younger children`s shyness and marginally positively correlated with girls` vagal tone (high vagal tone is said to be a marker of uninhibited behaviour). Young, Fox, and Zahn-Waxler (1999) found

negative relations between empathy and inhibition toward an unfamiliar adult, but not toward the mother. They concluded that inhibition may have an impact on children's empathy in unfamiliar contexts.

However, a child is not simply inhibited or not, he/she interacts in an environment that may be more or less accepting of this inhibition. Rubin and colleagues (Rubin, 1993; Rubin, Stewart, & Coplan, 1995) have been working on the development of social withdrawal and posit an interplay of endogenous-, socialisation- and early-relationships factors that may lead to a developmental pathway of social withdrawal. They draw the most negative picture for children that are inhibited and not securely attached to their parents; these children are at risk of developing internalising disorders. In line with this argumentation, we decided to study the interactions of temperamental inhibition and the caregiving styles of mothers and teachers in order to determine if specific temperamental types require specific caregiving practices to enhance the development of compassionate behaviour.

Support for this assumption comes from studies that investigated the socioemotional development of anxious or irritable children. For example, Crockenberg (1981) stated that "children who are irritable or in other ways less rewarding/more demanding of their parents are at risk for later developmental difficulty only if their environments are deficient in meeting their special needs" (p. 864). Similarly, Dienstbier (1984, cited in Kochanska, 1991, p. 1380) hypothesised that anxious children would be more responsive to socialisation efforts. Kochanska (1991, 1993, 1995) found support for this assumption in her studies about the development of internalisation. She found diverse pathways to internalisation for relatively fearful and relatively fearless children and concluded that "future research may reveal similar interactive effects between socialisation, temperament, and the development of empathy or altruism" (1993, p. 341).

"Socialisation" in all these studies means mother-child-interaction. So, what do we know so far about the relations between maternal child-rearing and children's compassionate behaviour? The literature tells us about positive associations between sympathy and a secure attachment relationship (Kestenbaum, Farber, & Sroufe, 1989; Volland, 1995), parental warmth and support (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991), parental modelling of sympathetic emotions (Fabes, Eisenberg, & Miller, 1990), parental encouragement of children's expression of emotion (Eisenberg et al., 1991), and finally an inductive child-rearing style (Krevans & Gibbs, 1996). Yet the picture is far from being complete or clear concerning the actual role of these variables in the development of

sympathy: The support for the assumption that a secure attachment and parental warmth/support rear sympathetic and prosocial children is mixed (Eisenberg & Fabes, 1998); the effect of parental models varies in many studies by sex – in some studies it is only the daughters who profit by their mothers' model (e.g. Eisenberg & McNally, 1993) whereas in the study of Eisenberg et al., (1991) it is only the sons who seem to model the fathers' prosocial reactions.

Thus, the aim of one of our studies was to examine whether an empathic maternal child-rearing style relates to compassionate behaviour in children. Another aim was to find out whether maternal socialisation practices and the child's sex moderate the relation between a child's inhibition towards strangers and his/her reactions to distress.

But mothers are not the only adults that play a significant role in children's lives. By the age of 3 or 4 years many children attend kindergarten, thereby extending their interpersonal relationships to peers and child care teachers. Although some work exists about the role of peers in emotional development (e.g. von Salisch, 1998), the research about emotional development in child-caregiver relationships is scant to non-existent (Eisenberg & Fabes, 1998; White & Howe, 1998).

Mitchell-Copeland, Denham, and DeMulder (1997) examined the different impact of teacher-child and mother-child attachment on the prosocial behaviour of 4-year-old children. Only the teacher-child attachment turned out to be predictive; additionally, in the subgroup of children who were insecurely attached to their mothers, children with secure teacher attachment relationships were more prosocial than their classmates with insecure attachments to both mothers and teachers. Thus, it would seem that a secure teacher-child attachment compensated for an insecure mother-child attachment. Additionally, Howes, Matheson, and Hamilton (1994) found that 4-year-old children classified as securely attached to their current and first preschool teachers were rated as more socially competent with unfamiliar peers than were children classified as having an insecure relationship with their teachers. Current teacher-child relationships better differentiated peer outcomes than did contemporary maternal attachment relations or child care history. The authors argued that "child care teacher relationships may be linked with peer outcomes because, unlike mothers, they are part of the activity setting where peer interactions are developed" (p. 272). This perspective underlines the context-specificity of behaviour (see also Harris, 1995; Hinde & Stevenson-Hinde, 1987; Radke-Yarrow, Richters, & Wilson, 1988).

In our study, we did not rely on attachment theory, but observed the child care teacher's warmth in interaction with the children as an indicator of the quality of the teacher-child relationship. We hypothesised that the more warmly the teacher behaved, the better the quality of teacher-child relationship would be and the more sympathetic-prosocial reactions the children would show. Again, we thought this variable in combination with sex to be a moderator for the relation between inhibition and reactions to distress and hypothesised a stronger negative relation for those children that attend a class with a less warm teacher.

In summary, we expected the children's reactions to distress to be related (1) negatively to inhibition (Studies I and II); (2) positively to the child care teacher's warmth (Study I) and (3) positively to the mother's empathic caregiving style (Study II). We further hypothesised that the relation between inhibition and reactions to distress would be moderated by the caregiving styles of mothers and teachers, that is, we expected the negative relation between inhibition and reactions to distress to be the strongest when the caregiving-environment was rather cold and non-empathic. For it has been reported that boys tend to demonstrate more negative interaction pattern with mothers and teachers (Pianta & Walsh, 1996), predictions from child-mother and child-teacher relationships were controlled for child gender.

## Study I

### *Method*

*Participants.* 105 five-year-old children (mean age 66.6 months, SD = 3.3 months, 41 girls, 64 boys) from five day care centres in and around Augsburg, a town with 250,000 residents in Southern Germany, participated. Of these, 101 children were observed in the sympathy-eliciting situation called "balloon" and 101 children participated in the situation called "pain"; 104 of the children participated in at least one of the two situations. 25 teachers were observed during free play. 93 parents filled out the inhibition-questionnaire. All of the participants were German native speakers and came from predominantly middle-class families. Mothers' level of education was: 24 % lower level (9-10 years of schooling); 51 % middle level (10 years of schooling) ; 25 % higher level (at least 12 years of schooling).

### *Procedures and Measurements*

*Sympathy assessments.* We collected two observational measurements of sympathy by means of distress simulation procedures, similar to those used in the research group of Trommsdorff (Trommsdorff, Friedlmeier, & Kienbaum, 1991; Kienbaum, 1993; Kienbaum & Trommsdorff, 1999). The procedures, whereby it was observed how the children reacted to the distress of a puppet in two situations, took place in a separate room in the kindergarten. This puppet was about 60 cm tall and was manipulated by a trained student (for other investigations where puppets were used successfully see Roberts & Strayer, 1987, or Oppenheim, Emde, & Warren, 1997). In the first situation, called "pain", child and puppet were sitting together drawing pictures. When the puppet decided to stand up and get some new crayons, it bumped into a chair and feigned injury for 30 seconds, followed by 30 seconds in which there was a gradual subsiding of the distress. In the second situation, called "balloon", the child and puppet played with two balloons that had been blown up before and then watched a film for 5 minutes duration together. During the film, the puppet's balloon burst and it again cried for 30 seconds, followed by 30 seconds in which there was a gradual subsiding of the distress. The reactions of the child were videotaped by two cameras and coded by four trained, independent observers into the categories "sympathetic/prosocial", and "avoiding", each on a scale from 0 (does not occur at all) to 3 (very strong). The criteria used for the evaluations were similar to those used by Eisenberg, McCreath, and Ahn (1988, p. 303) as well to those used in other research groups (Kienbaum, 1993, p. 69; Trommsdorff et al., 1991). Interrater reliabilities were established for the whole sample by means of Cohen's weighted kappas<sup>1</sup> (1968). Reliability scores are presented in the parentheses that precede each code description below; they are all highly significant ( $p \leq .001$ ). Where discrepancies between ratings occurred, the final rating was decided in conference

1. *Sympathetic/prosocial* reactions ( $k_w = .88$ /"pain";  $k_w = .82$ /"balloon") were coded when the child interrupted his/her activity, softened his/her face, oriented towards the puppet by looking at it and talking to it in a soft comforting voice and/or caressing the puppet.

2. *Avoidant* reactions ( $k_w = .65$ /"pain";  $k_w = .65$ /"balloon") were coded when the child did not orient towards the puppet and showed no interest in its misfortune.

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<sup>1</sup> The weights were assigned by the formula  $v_{ij} = |i-j|$ .



These reactions were coded within the first 30 seconds of distress; the categories were not mutually exclusive.

*Teacher's warmth.* The teachers of the children in kindergarten were observed during 2 weeks on four different days during free play for 45 minutes each time. Among other measurements (see Kienbaum, 2001), two trained observers evaluated the quality of the teachers' emotional relationship with the children on a 5-point-scale ranging from 1 = unfriendly, distanced, emotionally cold behaviour to 5 = friendly, devoted, emotionally warm behaviour. During each 45minutes visit this rating was carried out twice. The resulting eight values for each teacher were averaged (standard deviations ranged from  $s = 0$  to  $s = 1.12$ ,  $M = .51$ ). Interobserver reliability was high ( $k_w = .89$ ,  $p \leq .001$ ). The amount of warmth teachers showed ranged from scale point 2 to scale point 4.5, with a mean of 3.14. It was not different for girls or boys,  $t(103) = -.54$ , n.s. (see Table 1), or for inhibited or not-inhibited children,  $t(103) = -.67$ , n.s..

*Inhibition.* The parents (nearly always the mothers) answered a questionnaire that contained 2x4 questions designed by Asendorpf (1993) to be rated on a 7 point scale (never-always); 4 referred to inhibition to adult strangers and 4 parallel questions referred to inhibition toward peer strangers (e.g. "my child is shy toward unknown adults"; "my child is shy toward unknown peers"). These items were randomly distributed among 24 other items of the same response format. The internal consistency for the 8-item scale was Cronbach's alpha = .91.

### *Results*

The research findings are organised as follows: (a) Means and standard deviations of all measurements are presented, (b) sex differences are reported, (c) relations between reactions to distress and the single measurements (teachers' caregiving-style and inhibition) are represented, and (d) the combined effect of personality and caregiving styles is examined. Table 1 shows means and standard deviations for the reactions to the distress-simulations, inhibition and teacher caregiving style.

Table 1

*Study I: Means and Standard Deviations for Reactions to Distress, Inhibition and Teachers' Warmth*

MEASUREMENTS	Girls	Boys
	M (SD)	M (SD)
Reactions to distress		
<u>Sympathetic – prosocial<sup>a</sup></u>		
Pain	0.98 (1.21)	0.45 (0.89)
Balloon	1.79 (1.22)	0.95 (1.23)
<u>Avoidant<sup>a</sup></u>		
Pain	0.83 (1.07)	1.43 (1.20)
Balloon	0.67 (0.98)	1.48 (1.28)
<u>Inhibition<sup>b</sup></u>	3.36 (1.10)	3.37 (0.99)
<u>Teachers' warmth<sup>c</sup></u>	3.11 (0.44)	3.17 (0.63)

*Note.* n = 40 girls and n = 60 boys in "Pain" and n = 39 girls and n = 62 boys in "Balloon", n = 34 girls and n = 59 boys for Inhibition and n = 41 girls and n = 64 boys for Teacher's warmth. <sup>a</sup>rated on a scale of 0 to 3; <sup>b</sup>rated on a scale of 1 to 7; <sup>c</sup>rated on a scale of 1 to 5.

*Sex differences.* To examine whether there were sex differences in the major variables, t-tests were computed. Concerning the reactions to distress, in both situations the girls showed more sympathetic-prosocial ( $t(99) = 2.51, p < .05$  for "pain" and  $t(99) = 3.36, p < .001$  for "balloon") and less avoidance reactions ( $t(99) = -2.50, p < .01$  for "pain" and  $t(99) = -3.41, p < .001$  for "balloon"). There were no differences in parent-rated inhibition ( $t(91) = -.06, n.s.$ ) or teachers' warmth ( $t(103) = -.54, n.s.$ ).

*Intercorrelations.* The reactions in the two situations "pain" and "balloon" were partly intercorrelated ( $r(98) = .57, p < .001$ , for sympathetic-prosocial reactions and  $r(98) = .51, p < .001$  for avoidant reactions (Spearman-rank-correlations, one-tailed). Therefore, the variables were z-transformed and aggregated. These composites were used for all further analyses, their intercorrelation was  $r(104) = -.78, p < .001$  (Pearson-correlations, one-tailed).

*Teachers' warmth and reactions to distress.* The teachers' warmth correlated in the expected direction for both reactions to distress, albeit the correlations were not very high and did not always approach significance. Warmth correlated positively with sympathetic-prosocial

reactions, whole sample:  $r(104)=.22, p<.05$ ; girls:  $r(41)=.21, p<.10$ ; boys:  $r(63)=.28, p<.05$ ) and negatively with avoidant reactions, whole sample:  $r(104)=-.13, n.s.$ ; girls:  $r(41)=-.13, n.s.$ ; boys:  $r(63)=-.19, p<.10$  (Spearman-rank-correlations, one-tailed).

*Inhibition and reactions to distress.* The expected relations (a negative correlation between inhibition and sympathetic-prosocial reactions and a positive one between inhibition and avoidant reactions) was found to be tendentially true only for the boys, the other correlations turned out to be non-significant (see Table 2, upper row).

Table 2

*Study I: Correlations between Inhibition towards Strangers and Reactions to Distress*

	Sympathetic-Prosocial			Avoidant		
	$\Sigma$	Girls	Boys	$\Sigma$	Girls	Boys
Total sample	-.06 (92)	.09 (34)	-.18 <sup>+</sup> (58)	.14 <sup>+</sup> (92)	.04 (34)	.23* (58)
Below median	-.22 <sup>+</sup> (52)	-.11 (20)	-.37* (32)	.27* (52)	.30 <sup>+</sup> (20)	.30* (32)
Above median	.15 (40)	.45 <sup>+</sup> (14)	-.01 (26)	-.06 (40)	-.47* (14)	.14 (26)

<sup>+</sup> $p \leq .10$ . \*  $p \leq .05$ . Number of subjects in parentheses. Pearson correlations, one-tailed. Median split for teachers' warmth.

*Interactions of inhibition and teachers' warmth.* To determine whether there are interactions between inhibition and caregiving style of the teachers, we split the sample at the median of teacher's warmth (below and above 3.16) and calculated the correlations between inhibition and reactions to distress. For the group of the warmer teachers (above the median), there was a tendentially significant positive correlation between inhibition and girls' sympathetic-prosocial reactions and a significantly negative correlation between inhibition and girls' avoidant reactions (Table 2, lower row). In contrast, the middle row of Table 2 shows the results for the children that attended a class with a less warm teacher (below the median): Here, especially for the boys, a clear negative relation between inhibition and sympathetic-prosocial reactions occurred. In addition to this, avoidant reactions correlated positively with inhibition. The correlations between the two groups above and below the median differed significantly or showed at least a trend for sympathetic-prosocial reactions (whole sample:  $p = .04$ ; girls:  $p=.06$ ; boys:  $p=.09$ ) and for avoidant reactions

(whole sample:  $p = .07$ ; girls:  $p = .02$ ). The correlations between avoidant reactions and inhibition for boys below and above the median did not differ significantly.

In order to test the moderation hypotheses with another method, we conducted a series of hierarchical regressions on the entire sample. The general strategy for the analyses involved controlling for sex of the child, inhibition of the child and teacher warmth prior to obtaining an estimate of the contribution of the interactions between these predictor variables to children's sympathetic-prosocial or avoidant reactions. We did not expect problems of multicollinearity because inhibition and teacher warmth were unrelated ( $r = -.05$ , n.s.). For both outcome variables, sex was entered at the first step, because of the sex differences that had been obtained before (see Table 1). Inhibition and teacher warmth were entered at the second step, the interaction between inhibition and teacher warmth at the third step, the interaction between sex and inhibition and sex and teacher warmth at the fourth step and the three-way interaction (sex, inhibition, teacher warmth) at the last step. These analyses specifically tested the significance of the interaction between sex, inhibition and teacher warmth that appeared before in the correlational analyses (see Table 2).

Table 3

*Hierarchical Multiple Regression Analysis for Variables Predicting Children's Reactions to Distress (N=91)*

Predictor	Sympathetic-Prosocial			Avoidant		
	$\beta$	$R^2$	$\Delta R^2$	$\beta$	$R^2$	$\Delta R^2$
Step 1		.12***			.13***	
Sex	-.34***			.36***		
Step 2		.16**	.04		.17***	.04
Inhibition	-.07			.14		
Warmth	.18 <sup>+</sup>			-.13		
Step 3		.17**	.01		.17**	.00
Inhib. x Warmth	.11			-.06		
Step 4		.18**	.01		.18**	.01
Sex x Inhibition	-.11			.10		
Sex x Warmth	-.05			-.02		
Step 5		.21**	.03 <sup>+</sup>		.22**	.04*
Sex x Inhibition x Warmth	-.19 <sup>+</sup>			.23*		

<sup>+</sup>  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

As shown in Table 3, the interaction between sex, inhibition, and teacher warmth provided a tendentially significant incremental increase to  $R^2$  for the sympathetic-prosocial aggregate and a significant incremental increase to  $R^2$  for the avoidance aggregate. Thus, for classes with less warm teachers, there is a negative relation between inhibition and sympathetic-prosocial reactions and a positive relation between inhibition and avoidant reactions, mainly for boys. In classes with teachers above the median in warmth, we find positive correlations between inhibition and sympathetic-prosocial reactions and negative ones between inhibition and avoidant reactions, but only for girls.

## Study II

### Method

*Participants.* Participants in Study II were 79 mothers (mean age 35.3 years, SD = 5.3 years, range 27 years) and their five-year-old children (M = 66.2 months, SD = 3.9 months, range

14 months; 33 girls, 46 boys; 41 children were the same as in Study I<sup>2</sup>) from eight day care centres in and around Augsburg. Both mothers and children were all German native speakers and came from predominantly middle-class families. Mothers' level of education was: 26 % lower level (9-10 years of schooling); 53 % middle level (10 years of schooling); 21 % highest level (at least 12 years of schooling). As in Study I all of the children were observed in the two sympathy-eliciting situations called "pain" and "balloon". The mothers took part in an interview and filled out an inhibition questionnaire.

*Procedures.* The children's reactions to the simulated distress of a puppet were observed in the kindergarten (for details see Study I). The mothers were interviewed at home. Inhibition questionnaires were filled out by the mothers at home and then returned.

*Sympathy assessments.* For the assessment of sympathy the same measurements were used as in Study I. Interobserver reliability was established for the whole sample: *Sympathetic/prosocial* reactions ( $k_w = .78$ ,  $p < .001$ /"pain";  $k_w = .83$ ,  $p < .001$ /"balloon"), and *avoidant* reactions ( $k_w = .72$ ,  $p < .001$ /"pain";  $k_w = .75$ ,  $p < .001$ /"balloon"). Discrepancies between ratings were decided in conference. The final rating was the conferenced rating.

*Maternal reactions.* Mothers took part in an interview to assess their style of caregiving. The interview contained 19 short episodes in which the child was in distress (e. g. becoming sad or afraid, hurting himself/herself). Mothers were asked separately how they would *feel* and how they would *react* if their own child was in distress as described in each of these episodes (see Ulich, 1997; Volland, Ulich, & Kienbaum, 1999). The whole interview was transcribed and the answers of the mothers were categorized (1=yes, 0=no) by trained students into empathic (e. g. "I feel sorry for my child") versus non-empathic (e. g. "I get angry with my child") and neutral feelings as well as empathic reactions (e. g. "I help my child") versus non-empathic reactions (e. g. "I scold and punish my child"). For each of the categories the answers of the mothers were summed up and divided by the possible maximum number of answers. The interviews were conducted by trained students, who were all blind to the children's data. Interobserver reliability on the categorization was established for a third of the sample and averaged  $k = .79$ ,  $p < .001$  for empathic feelings and  $k = .74$ ,  $p < .001$  for

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<sup>2</sup> Unfortunately, this number was too small for a direct comparison of mother-child and teacher-child relationship

empathic behavior. Discrepancies between ratings were decided in conference. The final rating was the conferenced rating.

Because the correlation between "empathic feelings" and "empathic reactions" was high ( $r(79) = .66, p < .001$ ), we decided to calculate a mean score "empathic caregiving style".

*Inhibition.* To assess the child's inhibition towards strangers the same questionnaire as in Study I was administered. The internal consistency for the 8-item scale in Study II was Cronbach's  $\alpha = .94$ .

### *Results*

The research findings are organized as in Study I: (a) Means and standard deviations of all measurements are presented, (b) sex differences are reported, (c) relations between reactions to distress and the single measurements (mothers' empathic caregiving style and inhibition) are represented, and (d) the combined effect of personality and mothers' caregiving styles is examined.

Table 4 shows means and standard deviations for the reactions to the distress-simulations, inhibition and mothers' empathic caregiving style.

Table 4

*Study II: Means and Standard Deviations of Reactions to Distress, Inhibition, and Mothers' Empathic Caregiving Style*

	Girls (n=33)	Boys (n=46)
MEASUREMENTS	M (SD)	M (SD)
<u>Reactions to distress</u>		
Sympathetic – prosocial <sup>a</sup>		
Pain	1.06 (1.24)	0.52 (0.97)
Balloon	1.77 (1.10)	0.95 (1.15)
Avoidant <sup>a</sup>		
Pain	0.45 (0.72)	1.29 (1.24)
Balloon	0.33 (0.66)	1.30 (1.24)
<u>Inhibition<sup>b</sup></u>	3.62 (1.26)	3.54 (1.12)
<u>Mothers' empathic caregiving style<sup>c</sup></u>	.58 (.18)	.55 (.18)

*Note.* n = 31 girls and n = 42 boys for "Pain"; n = 30 girls and n = 43 boys for "Balloon"; n = 31 girls and n = 46 boys for inhibition; n = 33 girls and n = 46 boys for mothers' empathic caregiving style. <sup>a</sup>rated on a scale of 0 to 3; <sup>b</sup>rated on a scale of 1 to 7; <sup>c</sup>mean score from 0 to 1.

*Sex differences.* To examine whether there were sex differences in the major variables, t-tests were computed. Concerning the reactions to distress, in both situations the girls showed more sympathetic-prosocial ( $t(71) = 2.02, p < .05$  for "pain" and  $t(71) = 3.02, p < .005$  for "balloon") and less avoidant reactions ( $t(71) = -3.62, p < .001$  for "pain" and  $t(71) = -4.31, p < .001$  for "balloon"). There were no differences in mother-rated inhibition ( $t(75) = .28, n.s.$ ), and mothers' empathic caregiving style ( $t(77) = .76, n.s.$ ).

*Intercorrelations.* Since the reactions in the two situations "pain" and "balloon" were intercorrelated ( $r(69) = .46, p < .001$ , for sympathetic-prosocial reactions and  $r(69) = .59, p < .001$  for avoidant reactions) these two variables were z-transformed and aggregated. These composites were used for all further analyses, their intercorrelation was  $r(77) = -.70, p < .001$  (Pearson correlations, one-tailed).



*Maternal empathic caregiving style and reactions to distress.* Contrary to our hypotheses, there were no significant correlations between mother's reported empathic caregiving style and the child's reactions to distress ( $r(77) = .01$ , n. s. for sympathetic prosocial reactions;  $r(77) = -.08$ , n. s. for avoidant reactions).

*Inhibition and reactions to distress.* Concerning the relationship between inhibition and the reactions to distress, inhibited boys tended to show reactions which were less sympathetic-prosocial and more avoidant (see Table 5).

Table 5

*Study II: Correlations between Inhibition towards Strangers and Reactions to Distress*

	Sympathetic-Prosocial			Avoidant		
	$\Sigma$	Girls	Boys	$\Sigma$	Girls	Boys
Total sample	-.07 (75)	.07 (31)	-.23 <sup>+</sup> (44)	.13 (75)	.12 (31)	.21 <sup>+</sup> (44)
Below median	-.01 (40)	.28 (15)	-.27 <sup>+</sup> (25)	.17 (40)	-.00 (15)	.35* (25)
Above median	-.13 (35)	-.09 (16)	-.22 (19)	.10 (35)	.22 (16)	.08 (19)

<sup>+</sup> $p < .10$ . \*  $p < .05$ . Number of subjects in parentheses. Pearson correlations, one-tailed. Median split for maternal empathy.

*Interactions of inhibition and maternal caregiving style.* In order to examine whether the maternal caregiving style moderates the relation between inhibition towards strangers and the child's reactions to distress, we first split the sample of mothers at the median for the variable "empathic caregiving style" (below or above .57). We then computed correlations between inhibition and prosocial responding separately for boys and girls.

The results in Table 5 show that inhibited children who have mothers which report a low empathic caregiving style show quite the same pattern of reactions as was found for the whole sample: boys tend to react with less sympathy and show significantly more avoidance. This result points to a moderating effect of the maternal caregiving style at least for the avoidant reactions. The

correlations for girls were non-significant in both situations. There were also no significant results for the group of mothers with a highly empathic caregiving style.

In order to use another test for the moderation-hypotheses, we conducted again a series of hierarchical regressions on the entire sample. The predictors were entered in the same order as in study one; teacher warmth was replaced by mother's empathic caregiving style. Multicollinearity was not given, in as far as mother's empathic caregiving style and inhibition were unrelated ( $r(77) = -.11$ , n. s.).

For both the sympathetic-prosocial aggregate and the avoidance aggregate, only the main effect of child's sex was significant ( $R^2 = .10$ ,  $b = -.32$ , both  $p < .01$  and  $R^2 = .20$ ,  $b = .44$ , both  $p < .001$ , respectively). Thus, unlike in study one, the interaction between sex, inhibition and mother's empathic caregiving style did not prove to be significant.

### *Discussion*

The two studies presented analysed the role of two different interpersonal relationships and the personality of the child for the development of sympathetic-prosocial responding. Observations were made on how children reacted to the distress of a puppet in two situations; the central question was whether there were meaningful relations between these reactions and the quality of mother-child relationship, teacher-child relationship, and the personal characteristics sex and inhibition of a child. To begin with, we looked for differences between boys and girls. The only sex difference obtained was for the children's compassionate behaviour in both situations: Girls showed more sympathetic-prosocial reactions and less avoidant ones compared to boys. These results are in line with much of the existing research about sex differences in sympathy, although they were not always attained from observational measures (Lennon & Eisenberg, 1987; Kienbaum 1993).

Concerning the different interpersonal relationships, there were no significant associations between maternal empathic caregiving style and the child's reactions to distress. In contrast, the quality of the teachers' caregiving style showed modest correlations in the expected direction: The more warmly the teacher behaved, the more sympathetic-prosocial and the less avoidant reactions the children showed. Because warmth is a variable that is frequently part of the operationalization of a secure attachment relationship, this result supports the findings of studies conducted within the framework of attachment theory (Howes et al., 1994; Mitchell-Copeland et al., 1997).

In both studies, inhibition toward strangers tended only to be related to reactions to distress in the case of boys: The more they were rated as inhibited, the less sympathetic-prosocial and the more avoidant reactions they showed. The picture changed when interactions between the different interpersonal relationships and personality were taken into account: Concerning the teacher-child relationship, more and higher correlations (negative between inhibition and sympathetic-prosocial reactions and positive between inhibition and avoidance) occurred when the children attended a class with a teacher who was not very caring. Again, this result was true mainly for the boys. For the girls, the opposite pattern of results occurred when they attended a class with a teacher above the median in warmth: Inhibition turned out to be positively correlated with compassionate behaviour and negatively with avoidant reactions. These correlational results were confirmed by means of a hierarchical regression; the three-way-interaction between sex, inhibition and warmth became significant for avoidant reactions and tendentially significant for sympathetic-prosocial reactions. Thus, unlike in an earlier analysis (Kienbaum, 2001), making use of an hierarchical regression and including three-way-interactions revealed a moderating effect of child sex and teacher warmth. Although three-way-interactions are often hard to interpret, in this case the pattern of correlational results was quite clear and could therefore be used as a basis for interpretation.

Concerning the mother-child relationship, the negative correlation between maternal caregiving style and avoidance in boys became higher in the group of the less empathic mothers - but this moderating effect could not be confirmed with the hierarchical regression. There was only a main effect of the child's sex. Perhaps the fact that we neither found direct nor moderating effects of the mother-child relationship on the child's reactions to distress is due to the fact that they were assessed in kindergarten. The effects of the teacher-child relationship could also be explained by a "context effect" because both teacher-child relationship and child's reactions to distress were measured in the same context, namely the kindergarten (Harris, 1995; Howes et al., 1994).

Thus the hypothesis that the negative correlation between inhibition and sympathy will be closer the more negative the adult-child relationship is appeared to be true for the teacher-child relationship only; here, the impact of inhibition varied as a function of teachers' warmth and children's sex. Why the negative relations occurred mainly for the boys and the positive ones only for the girls remains an interesting question for further research. Generally, much of the literature on shyness says that it has worse consequences for boys than for girls (Caspi, Elder, & Bem, 1988;

Engfer, 1993; Rubin, Chen, & Hymel, 1993), so boys may be especially vulnerable with respect to teachers' non-optimal caregiving styles. Inhibited girls, in contrast, may not have had as many bad experiences as the boys and may therefore be more open to the positive effects of warm caregiving. For an optimal analysis of this question, it would be necessary to focus on the teacher's behaviour in interaction with each individual child rather than on what happens in the classroom at large. However, the fact that we obtained significant findings, even though we only observed the general caregiving style of the teachers, suggests the relevance of this variable.

Of course our results are limited. Effect sizes were not very high and especially the number of girls studied was quite small. Whether moderational effects are replicable or not is an issue of discussion (Bem, 1972; Borkenau, 1985; Chaplin & Goldberg, 1984; Wallach & Leggett, 1972), but only further research with bigger samples will be able to give an answer to this question. Still, the results of this study underline the importance of considering the child in *contexts and relationships*. This approach seems promising for further research on children's emotional development.

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