

Emotion regulation in early childhood: A cross-cultural comparison between German and Japanese toddlers

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The purpose of this study is to analyze toddlers' regulation of negative emotions in two cultures. A general sequential model of emotion regulation is specified that takes emotional reaction, goal-directed behavior strategies, and the interactive process between child and mother into account. Two-year-old Japanese ($n = 20$) and German ($n = 20$) girls and their mothers were observed in a quasi-natural interaction in which the girls experienced a playmate's distress (the mothers were present). The features of the sequential model were measured. Mothers' sensitivity was assessed in a structured mother-child interaction. The sequential model was confirmed for the German sample and modified in regard to the regulation of distance for the Japanese sample. The Japanese mothers displayed more sensitive and contingent behavior. Culture-specific differences in regard to the distribution of children's regulation patterns and qualities of mother-child interactions demonstrate the effects of different socialization practices with respect to socio-emotional development.

In recent years, research on emotional development has shifted from a static to a process perspective and from a focus on person to a focus on interaction (cf. Campos, Campos, & Barrett, 1989; Dodge & Garber, 1991; Kopp, 1989).

The focus on process takes into account aspects of emotional response and regulation, especially the function of emotions for other psychological processes like cognitions, motives, and actions (Thompson, 1990). Emotions

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indicate the subjective meaning of a situation in regard to a person's needs by activating the appraisal system (cf. Lazarus, 1991). They are linked to instrumental behavior that may become habitual reactions or cognitively selected strategies (cf. Masters, 1991). Thereby, emotions encompass a regulation function in regard to the person's orientation in the environment. This raises the question of how children acquire competencies of emotion regulation.

The second shift refers to the assumption that emotion regulation in the first years of life is provided by some external regulator (e.g., caregivers), and emotional development emerges as a product of mutually influential interactions within a particular kind of social ecology (cf. Malatesta-Magai, 1991). In case of negative arousal, infants apply some strategies that reduce the emotional arousal, for example, gaze aversion, self-soothing, self-distraction, or contact- and proximity-seeking with the mother (cf. Mangelsdorf, Shapiro, & Marzolf, 1995). According to Kopp (1989), the necessity of external support is one principle of emotion regulation in childhood. Infants experiencing uncertainty actively seek contact with the caregiver and use their emotional expression or verbal information as guidance for their own emotional reaction and instrumental behavior; that is, they regulate their negative affect by referencing to others' (especially their mothers') reactions to events. Thereby, the basis for referencing is not only a cognitive analysis of meaning but also imitation, contagion, or modification of mood (cf. Walden, 1991). The children's motivation of referencing the mother is probably rooted in biologically based attachment processes (cf. Masters, 1991). Attachment theory also emphasizes the importance of caregivers as regulators for children's emotional development (cf. Greenspan & Greenspan, 1985). The need for care and protection provided by the caregivers is the beginning of the infant's socioemotional development (cf. Bowlby, 1982). This kind of regulation is an interactive and inherently cultural process because the caregivers interact with the infant according to their own subjective meaning system, which is socially and culturally transmitted (cf. Friedlmeier, 1995).

This recent perspective on emotional development implies the necessity of extending the focus on cultural research about emotional development: Culturally transmitted socialization practices and mother-child interactions are of importance for the understanding of children's emotional development (cf. Friedlmeier, 1996; Trommsdorff, 1997). Differences in socialization patterns as documented by cross-cultural studies justify the expectation of cultural differences in regard to children's emotion regulation. These shifts in research also have methodological implications: The focus on processes requires an assessment approach that emphasizes the dynamics of emotions (cf. Thompson, 1994). Observation techniques and functional behavior analysis, including the analysis of the meaning of the observed behavior, can

be used (cf. Sroufe & Waters, 1977). Therefore, the present study analyzes toddlers' regulation of negative emotion in two different cultures. A sequential model of emotion regulation is suggested that takes the child's emotional reactions, goal-directed behavior strategies, and the interactive processes between child and mother into account.

CULTURE AND SOCIALIZATION PRACTICES

Culture provides meaning to intended and to actually demonstrated behavior and its consequences including emotional responses; these interpretations affect future behavior orientation (cf. Kâğıtçibâsi, 1996). The main features of culture are a homogeneous set of shared values, norms, and beliefs. Cultural differences between Western and Eastern cultures are often explicated by using "relatedness-separatedness" (e.g., Kâğıtçibâsi, 1996) or "individualism-collectivism" (e.g., Triandis, Bontempo, Villareal, Asai, & Lucca, 1988) as a basic dimension. For the purpose of this study, cultural values of children and related parental beliefs are central contextual features. In Western industrialized cultures, parents view their children as separate entities and consequently try to foster autonomy and independence; in Eastern cultures, parents view their children as extensions of themselves—a strong emotional bonding and feeling of oneness characterize Japanese mothers (Azuma, 1984)—and accommodation to social expectations is an important child-rearing goal (Befu, 1986; Kornadt & Trommsdorff, 1990, 1997; Lebra, 1976; Trommsdorff, 1995a, 1995b, 1997; Trommsdorff & Friedlmeier, 1993). Consequently, Japanese (and Korean) mothers stress physical contact, whereas American and Canadian mothers encourage their children to express their needs (cf. Caudill & Schooler, 1973; Choi, 1992). Such culturally guided beliefs and child-rearing goals have consequences for the child's development, because mothers react to children's behavior in accordance to their beliefs and expectations. By this means, different dyadic patterns develop, and culture-specific differences in children's behavior can be explained primarily by the experience of different interaction patterns with the caregivers. Such an approach is demonstrated by Mizuta, Zahn-Waxler, Cole, and Hiruma (1996). The authors interpret the mother-child interaction observed in a separation situation in regard to mothers' acceptance of "amae"-behavior. Japanese mothers accepted their preschoolers' expression of distress that was expressed by reaching for their mothers when reunited. They engaged themselves in more proximal reassurance. By this means, the child experienced that it could seek and also receive comfort for regaining emotional security. In contrast, U.S. American preschoolers stayed more

distant when reunited with their mothers, and mothers perceived their children as immature and problematic if they displayed distress. On this basis, American children learn that it is more adequate to regulate emotions by themselves.

FEATURES OF TODDLERS' EMOTION REGULATION

In line with the literature, the term *emotion regulation* will be used here as a qualitative descriptor for regulation (cf. Dodge & Garber, 1991), which describes a toddler's vicariously induced emotional responses to another person's negative emotional state. Also, the courses of action, including maternal response and interactive processes, are of interest. The patterns of regulation are defined by specific sequences of action. The relevant features will be characterized as follows.

EMOTIONAL RESPONSE

Toddlers' experiences of another person's distress evoke spontaneous emotional response (cf. Eisenberg, 1986; Friedlmeier, 1993; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). Whether this involuntary response will result in empathy or distress depends on the infant's appraisal system. Empathy is defined as an emotional reaction that is consistent with the other person's emotional state (cf. Eisenberg & Strayer, 1987; Friedlmeier, 1993; Trommsdorff, 1995a). Distress is an aversive emotional reaction such as anxiety or discomfort (Batson, Fultz, & Schoenrade, 1987) and is characterized by a feeling of tenseness and unease (cf. Hoffman, 1975). Toddlers lack awareness about the fact that the other person's inner state is distinct from the self; the lack of adequate behavior strategies promotes uncertainty and distress (cf. Hoffman, 1975).

The kind and strength of the emotional reaction also may depend on the distance from the mother. Toddlers' control of distance from the mother can be seen as an indicator of experience of uncertainty or security needs (cf. Bowlby, 1982). Distance regulation is an important contextual feature that depends on cultural norms. Because strong mother-child bonds including physical proximity characterize Japanese mother-child dyads, this culture-specific feature may have consequences for culture-specific distance regulation in case of distress and the need to regulate emotions. It therefore can be expected that in case of distress, Japanese children stay closer to their mothers.

SUPPORT SEEKING

The experience of distress may evoke the child's activity to seek support to decrease or control the negative emotional state. Such activity may include, for example, emotional referencing by eye contact or searching for physical proximity. However, although it has so far not been studied whether these activities are functionally equivalent, both activities share some common characteristics. Emotional referencing means that children actively search for their mothers' help; they need to know or get information on how to feel and what to do (cf. Feinman, 1992). Physical proximity has two meanings: First, it is instrumental behavior, reducing the feeling of uncertainty; and second, the child may also receive information about how to interpret the situation. Under certain stressful conditions, toddlers' instrumental behaviors are predominantly focused on the mother (Parritz, 1996). Here, no cultural differences are expected: A toddler's interpsychic regulation (by emotional referencing or approaching the mother) is more important at this developmental age than intrapsychic regulation (no contact to the mother) in both cultures.

MATERNAL RESPONSE

The contingency of maternal reaction contributes significantly to the outcomes of children's emotional referencing. Two forms of noncontingent response patterns can be differentiated: lack of signals and false responses by the mother (cf. Walden, 1991). Thereby, the mother can use a purely emotional message (via visual expression), indicate behavior strategies, or comfort the child. Japanese mothers are more responsive than German or U.S. American mothers to their infants, for example, keeping the infants calm and indulging them (cf. Azuma, 1986) or providing more attempts to ameliorate negative emotional states (cf. Barratt, 1996). This behavior has been reported for Japanese mothers of infants and also of preschool children: Japanese as compared to German mothers react to their children in a more sympathetic, warm, and prompt way (cf. Trommsdorff & Friedlmeier, 1993, 1999).

EMOTIONAL STATE AT THE END

The process of referencing may lead to a reappraisal of the situation. The reappraisal may be influenced by the maternal reaction, for example, the kind of guidance that she offers. Thereby, even a purely emotional message (via visual expression) from the referent with no indication of behavior strategies can decrease the negative emotional state of the child (cf. Webster & Foschi, 1992).

MATERNAL SENSITIVITY AND ITS IMPACT ON TODDLERS' EMOTION REGULATION

Interindividual differences in children's emotion regulation are an outcome of past experiences of interactive regulation. Thereby, negative interpersonal interactions between child and caregiver can develop as a negative cycle that has consequences for the child's further emotional development (e.g., Malatesta-Magai, 1991). Similar cyclic processes are described in attachment research. Children who are ignored or rejected instead of getting attention and appropriate support in emotion communication will be attached in a more insecure way (cf. Ainsworth, 1992). The toddler's readiness to communicate and to express a negative emotional state toward the mother is promoted by the child's experience that the mother usually reacts in a contingent and sensitive way (cf. Main, Kaplan, & Cassidy, 1985). Although maternal sensitivity may be universally based on biological processes involving protection and care of the offspring (cf. Batson, 1990), mothers' attention and their sensitive reactions to their children's signals and behavior depend on their culturally guided beliefs and child-rearing goals (cf. Friedlmeier, 1999; Friedlmeier & Trommsdorff, 1998).

Because knowledge about culture-specific differences in toddlers' emotion regulation is still lacking, we attempted to study emotion regulation on the basis of a general sequential model of emotion regulation. We started from the idea that a child's emotion regulation is influenced (a) by the quality of maternal sensitivity that the child has experienced in previous interactions with the mother as well as (b) by the immediate maternal response in the actual context. The quality of maternal sensitivity was assessed here in a separate situation of mother-child interaction. It is assumed here that the mother's sensitivity is an outcome established by the child's reactions to the mother (cf. Malatesta-Magai, 1991); the actual quality of sensitivity may be an indicator or an outcome of past interactive patterns. For pragmatic reasons, the empirical study is divided into two parts: First, a sequential model for toddlers' emotion regulation, and second, a model of interactive processes including the maternal response will be presented.

SEQUENTIAL MODEL OF TODDLERS' EMOTION REGULATION

According to attachment theory and research on emotional referencing, three patterns of regulation can be differentiated (see Table 1). The specific patterns will be described in the Method section.

TABLE 1
Hypothesized Patterns in a Sequential
Model of Toddlers' Emotion Regulation

<i>Distance to Mother</i>	<i>Emotional Reaction</i>	<i>Support Seeking</i>	<i>Emotional State at the End</i>
Positive emotion regulation patterns			
High	Distress	Support seeking	Relaxed
High	Distress	Eye contact	Relaxed
High	No distress	No support seeking	Relaxed
Low	No distress	No support seeking	Relaxed
Negative emotion regulation patterns			
High	Distress	Support seeking	Tense
High	No distress	Support seeking	Tense
Low	No distress	Support seeking	Tense
Avoidant regulation pattern			
High	Distress	No support seeking	Tense

POSITIVE EMOTION REGULATION

A sensitive mother promotes the toddler's confidence to get support from her as well as the feeling of competence and self-efficacy (Parritz, Mangelsdorf, & Gunnar, 1992; Sroufe, 1983). Therefore, some children have had positive experiences in similar situations; in this case, they have behavior reactions available that allow them to deal with such experiences by themselves without maternal support. The probability of such a sequence may be even higher when the child is physically close to the mother before the event happens, because the physical proximity to the source of security may decrease the distress reaction and facilitate a positive regulation of the event. In case of distress, the child uses the mother as a source of reference (or secure base).

NEGATIVE EMOTION REGULATION

A less sensitive mother inhibits the toddler's confidence in the mother as a source of security as well as the infant's feeling of competence (cf. Main et al., 1985). Therefore, some children may have experienced not getting enough support to control their negative arousal, and they may not have developed strategies to regulate negative emotional experiences by themselves. Although they try to get maternal support, they remain tense at the end of the situation.

AVOIDANT REGULATION

Some children may have had the experience that the mother cannot be referred to as a competent person to master the event or cannot be seen as a source of security. Based on these experiences, these children do not look for their mothers' support based on the former experiences (cf. Ainsworth, Bell, & Stayton, 1971), although they express a negative emotional reaction. They try to regulate negative emotions by themselves, without being successful; that is, they remain tense at the end of the situation. These three patterns of regulation reflect some similarities with the classification used in attachment research, namely, secure and insecure (ambivalent, avoidant) patterns of attachment (cf. Ainsworth, Blehar, Waters, & Wall, 1978; Grossmann, Grossmann, & Schwan, 1986). However, these patterns cannot be regarded as equivalent to the attachment classifications: The stressors are different, and the negative arousal that is evoked by the vicarious experience of another person's sadness does not necessarily evoke the attachment system, as is the case when the child is separated from the attachment figure. The patterns of regulation serve as explorative descriptors and not as fixed classifications; that is, the meaning of the patterns may vary as a function of culture. Furthermore, the third pattern, "avoidance regulation," is not equivalent to the "insecure-avoidant" pattern. The latter focuses on the assumption of a nonbehavioral underlying stress reaction, whereas we use "avoidant behavior" as an observational category: The child does not orient to the mother in spite of (open) distress.

MODEL OF INTERACTIVE PROCESSES

The relevance of the mother's sensitivity for the child is assumed to be an outcome of the child's past experiences. In those cases in which the mother is present when the child experiences a negative emotional state, the mother's response will be a further and immediate condition that promotes or inhibits the child's emotion regulation. A sensitive mother perceives and interprets her child's emotion communication correctly and reacts in a prompt and appropriate way (Grossmann & Grossmann, 1993). Therefore, we assume that a contingent maternal reaction to the child will decrease the negative emotional reaction and encourage the child to act, especially after the source of distress is no longer present (see Table 2). In contrast, a noncontingent (e.g., no or inadequate) maternal reaction increases the probability that the child fails to regulate his or her emotional state (cf. Walden, 1991).

TABLE 2
Hypothesized Patterns in a
Sequential Model Including Maternal Reaction

<i>Support Seeking</i>	<i>Maternal Behavior</i>	<i>Emotional State at the End</i>
Positive emotion regulation pattern		
Support seeking	Contingent reaction	Relaxed
Negative emotion regulation pattern		
Support seeking	Noncontingent reaction	Tense

RESEARCH QUESTIONS

In the present study, culture-specific differences in the single features of the sequential model will be tested; however, according to the process perspective outlined above, the main focus of the present cross-cultural comparisons relates to the sequence of the single features. Here, the following three questions will be addressed:

1. Goodness of fit: Do all toddlers display one of the three theoretical patterns of regulation described above, or do culture-specific differences occur?
2. How are these three patterns of regulation distributed in the two cultural groups?
3. In regard to the interactive features, the question is twofold. One question relates to the actual context: Does a contingent maternal reaction to the child enhance, and does a noncontingent maternal reaction decrease the probability of a positive regulation pattern in both cultural groups? The second question relates to the maternal sensitivity assessed in another context: Are mothers whose toddlers show positive regulation more sensitive compared to mothers whose toddlers fail to regulate their negative affect? And, is this the case in both cultural groups?

METHOD

SAMPLE

Two-year-old German ($n = 20$) and Japanese ($n = 20$) girls and their mothers participated in this study carried out in Konstanz and Kobe. The dyads were recruited by phoning the families based on the birth register of the newspaper. There were no differences between the samples from both cultures with respect to socioeconomic status, child age, birth order, age of mother, or family size. The majority of the Japanese and German mothers had about the same educational level (BA or Abitur), and the majority of mothers in both

cultures were homemakers. The original intention to get a sample of at least $n = 25$ dyads in each culture could not be realized due to organizational problems, and due to technical problems, the whole set of data was completely available for $n = 17$ German and $n = 19$ Japanese dyads. Gender differences are already documented for 14-month-old children in regard to expression of distress (e.g., Zahn-Waxler et al., 1992). The girls' presumably stronger emotional expressions facilitate the analyses of the observed emotional reactions. Therefore, we only included girls to get a homogeneous sample and to increase the validity of our observational methods.

PROCEDURES

Observation of emotion regulation. The toddlers were observed during a quasi-experimental interaction with an adult playmate. The mother was sitting in a corner of the room; she was instructed to concentrate on reading some journals and not to initiate any actions toward her child; however, she could react if the child requested. The playmate introduced two teddy bears to the girl and both started to play with them. After a while, the playmate took off her teddy's clothes. By this action, one arm of the teddy bear broke. The playmate expressed her sadness (for about 2 minutes).

The emotional reactions of the child and the behavior toward the mother were videotaped. After 2 minutes, the playmate stopped her sadness; she gradually changed her behavior and adopted a relaxed expression. Then, she asked the child to continue to play together with the other remaining bear.

Observation of maternal sensitivity. The mother and her daughter were observed in two different interactions (task and disappointment situation). Instructions were given to the child while the mother was sitting near the child on the floor. If the mother asked about her role, she was informed that it was up to her to do whatever she wanted.

In the (a) task situation, the child was asked to build a tower. This task was too difficult for this age group. In the (b) disappointment situation, the child played with dolls and a dollhouse. These toys were suddenly taken away by a strange person who argued that she needed the toys for other children in another room. The interaction between mother and child during and after the task and disappointment situation were videotaped.

Order of series. The mother-child interaction was observed in the first session and the interaction with the playmate in the second session. The same female adult served as experimenter and as playmate. Following the mother-child interaction in the first session, the playmate and the child played

together for about 30 minutes. This was a warming-up for the second session. Due to the necessity of guaranteeing a similar familiarity between the playmate and the child, the order of the sessions was not varied systematically.

DATA CODING

Variables of the Interaction With Playmate

Distance to the mother. Two levels of the child's distance to the mother were differentiated; the variable was evaluated within the period of play before the event happened. Low distance was coded if the child did not stay with the playmate for the whole time but tried to approach the mother from time to time. High distance was coded if the child played continuously with the playmate and did not show any movement to get closer to the mother.

Spontaneous emotional reaction after the playmate's misfortune. The child's emotional reaction (facial expression, gestures, and postures) within the first 20 seconds were coded in a dichotomous way: distress versus no distress. Criteria used for coding facial distress were taken from Eisenberg et al. (1990): The child exhibited nonfunctional nervous mouth and chin movements (e.g., biting of the lips). Nonfunctional gestures (e.g., fiddling with the shirt) and a tense posture (e.g., no motor movements) were used as further criteria for distress. No distress was coded if none of these criteria could be observed clearly.

Quality of support seeking. Three categories were evaluated for support-seeking: (a) Eye contact, that is, the child did not reduce the physical distance to the mother but tried to engage in eye contact; (b) support seeking, that is, the child moved closer to the mother and showed that she wanted physical contact and communication with the mother; and (c) no support seeking. A differentiation between getting support for oneself and requesting that the mother help the other could not be realized due to the toddlers' reduced verbal abilities.

Maternal contingency. If the child looked for support, the maternal reaction was evaluated in a dichotomous way: contingent (i.e., the mother reacts promptly, in a spontaneous way) and noncontingent (i.e., the mother does not react, reacts late, or does not react adequately, that is, she gives orders to the child in a harsh tone). Originally, it was planned to evaluate the maternal contingency if the child tried to engage in eye contact. This evaluation could not be realized because most mothers understood their role to remain apart from

the situation, to continue to read a journal, and only to intervene when the child's requests appeared very serious. Therefore, mothers' ignorance of the children's initiations of eye contact was a consequence of the experimental instruction and could not be interpreted as a characteristic pattern of the observed dyad.

Toddler's emotional state at the end of the event. The girl's emotional state within the following 20 seconds after the playmate stopped her sad reaction was coded in a dichotomous way: relaxed (i.e., the child is able to go back to the play situation or to come closer to the playmate without any signs of tension) and tense (i.e., even after the end of the event, the child stays distant, clings to the mother, avoids contact with the playmate, or does not want to continue to play with the playmate).

Patterns of Emotion Regulation Behavior

According to the operationalized features of the sequential model above, 24 different patterns can appear ($2 \times 2 \times 3 \times 2$). Starting from the idea that a child's emotion regulation is influenced by previous mother-child interactions, the number of theoretically relevant paths can be reduced to 8. These paths can again be condensed to 3 patterns of regulation: positive, negative, and avoidant regulation that are operationalized in the following way (see Table 1).

Positive emotion regulation. One path occurs if a child who is distant from the mother reacts with distress and relaxes after having sought maternal support. Instead of looking for physical proximity, eye contact as an interactive feature also may be sufficient for relaxing. If a child does not react with distress and is relaxed at the end without requesting the mother's attention, such reaction also is evaluated as a positive regulation. This latter path may occur independently of the child's distance from the mother in the beginning (see Table 1).

Negative emotion regulation. Besides the path that occurs if a child who is distant reacts by distress, seeks support, and stays tense, two further paths are meaningful. If a child does not react by distress but looks for support and stays tense, the lack of distress may be a sign for emotional suppression. This latter path may occur independently of the distance to the mother before the event (see Table 1).

Avoidant regulation. In contrast to the negative regulation, these children display distress but do not seek support or eye contact, and they stay tense at

the end of the situation. This path clearly differs from the paths of the negative regulation patterns because the children display distress directly after the playmate's misfortune and they remain tense until the end of the situation. Nevertheless, they do not look for maternal support; that is, they avoid any reference to the mother.

Patterns of Interactive Process (see Table 2)

A contingent maternal reaction to the child leads to a relaxed emotional state, for example, the child does not display dysfunctional movement or approach the playmate again, or the child continues to play with her. In contrast, a noncontingent maternal reaction leads to a tense emotional state, for example, the child stays distant, avoids looking at the playmate, or clings to the mother.

Variables of the Mother-Child Interaction

Maternal sensitivity. The mothers' behavior toward their daughters was rated on 6-point Likert-type scales from 1 (*very low*) to 6 (*very strong*) that were conceptualized as indicators for sensitivity: "Emotional tone" measured maternal warmth, "responsiveness" measured promptness and adequacy of the maternal reaction, "empathy" measured empathic comments about the child's state, and "acceptance" measured the mother's tolerance if the child did not want to build the tower. These four scales were used in the task situation; in the disappointment situation, only mother's empathy and responsiveness were rated as relevant indicators. These indicators were seen to represent the same concept and were combined to one indicator: Maternal Sensitivity. The alpha coefficients for the scale were $\alpha = .80$ for the German and $\alpha = .79$ for the Japanese sample, respectively.

DATA ANALYSIS

Chi-square tests were computed for nominal data. Approximated binomial tests were used to compute the model fit of regulation patterns. The $2 \times 2 \times 3 \times 2$ design of the sequential model contained 24 different patterns. Eight paths were defined within the sequential model. Therefore, the expected probability for a model-confirming pattern was set at $p = .33$, and the alternative probability for a nonconfirming pattern was set at $q = .67$. Although the scale Maternal Sensitivity represents an interval level, nonparametric methods (Kruskal-Wallis test) were used because of the small number of subjects in both cultural samples.

INTERRATER RELIABILITY

Three coders evaluated the variables in the interaction situation with the playmate. A German coder evaluated both samples. Ratings for the whole Japanese sample and $n = 18$ German girls were done by a second German rater. A Japanese coder rated part of it ($n = 8$ for each culture). The Japanese ratings were used for solving disagreements between the two German raters and for excluding a possible cultural bias of the raters. The ratings of the two German raters served as the basis for calculating the interrater reliability by using Cohen's kappa: For the German sample, the kappa values ranged between $\kappa = .67$ ($p < .05$) for maternal response (due to the low frequency of occurrence, only one of the six ratings was not consistent) and $\kappa = .86$ ($p < .001$), with a mean value of $\kappa = .75$ ($p < .001$). For the Japanese sample, the kappa values ranged between $\kappa = .66$ ($p < .05$) (distance to mother) and $\kappa = 1.00$ ($p < .001$) (emotional state at the end), with a mean value of $\kappa = .78$ ($p < .001$).

The variables of the mother-child interaction for the Japanese ($n = 19$) and for part of the German sample ($n = 10$) were evaluated by a Japanese and, vice versa, by a German rater. Because one representative of each culture carried out both ratings, the interrater reliabilities in regard to the six scales of mothers' sensitivity were calculated for both samples together ($n = 20$). The correlation coefficients ranged between $r(18) = .54$ ($p < .02$) (emotional tone in the task situation) and $r(18) = .85$ ($p < .0001$) (empathy in disappointment situation), with a mean correlation of $r(18) = .72$ ($p < .0002$). Furthermore, Cohen's weighted kappa was calculated to test the interrater agreement (cf. Tinsley & Weiss, 1976). All kappa values were significant with the range between $\kappa = .36$ ($p < .004$) (empathy in the task situation) and $\kappa = .61$ ($p < .0001$) (empathy in the disappointment situation). The interrater reliability and agreement for the composite variable maternal sensitivity reached a satisfactory level: $r(18) = .82$ ($p < .0001$), $\kappa = .56$ ($p < .0001$).

RESULTS

CULTURE-SPECIFIC DIFFERENCES IN THE FEATURES OF THE SEQUENTIAL MODEL

Distance to the mother. More Japanese (42.11%, $n = 8$) as compared to German girls (23.53%, $n = 4$) approached their mothers; however, this difference was not significant, $\chi^2(1) = 1.39$, *ns*.

Distress reaction. As expected, more Japanese (84.21%, $n = 16$) as compared to German girls (35.29%, $n = 6$) displayed a distress reaction, $\chi^2(1) = 9.03, p < .01$.

Support seeking. Most of the girls of both groups looked for maternal support: German girls, 88.24% ($n = 15$); Japanese girls, 73.68% ($n = 14$), $\chi^2(1) = 1.21, ns$. The interpsychic regulation—that is, the regulation together with the mother—dominated in this situation for both groups. A culture-specific relationship occurred by looking closer to the kind of support seeking, $\chi^2(1) = 4.27, p < .05$: If the Japanese girls looked for support, they did so by getting physically closer to their mothers (92.86%, $n = 13$), although they stayed already closer to their mothers. In contrast, the German girls used referencing behavior by eye contact (40.00%, $n = 6$). Only 1 Japanese girl showed the latter behavior.

Maternal response. When the girls tried to receive their mothers' response, Japanese (79.92%, $n = 10$) as compared to German mothers (44.44%, $n = 4$) reacted more often in a contingent way, but this difference was not significant, $\chi^2(1) = 2.42, ns$.

Emotional state at the end. More German (63.16%, $n = 12$) than Japanese girls (31.58%, $n = 6$) appeared to be relaxed after the sadness period in the interaction with the playmate, $\chi^2(1) = 5.46, p < .05$. They showed less signs of tension and went back to the playmate more often to restart the interaction.

SEQUENTIAL MODEL OF EMOTION REGULATION

Goodness of fit for German girls. All German girls who reacted with distress ($n = 6$) looked for maternal support; half of them were successful, ending up in a relaxed emotional state (see Table 3). All girls who used eye contact ($n = 6$) as a strategy of getting maternal support displayed positive regulation. The 2 girls who did not show any signs of support seeking also ended in a relaxed state. None of the German girls showed an avoidant regulation.

Comparing the empirical patterns with the theoretical paths, the approximated binomial test yielded a model fit, $\chi^2(1) = 18.73, p < .001$. Only 17.64% (3 of the 17 girls) did not fit the model. One girl who stayed close to her mother reacted with distress, tried to get maternal support, and ended up in a tense state. Finally, 2 girls showed no distress, looked for maternal support, and ended in a relaxed state. According to the model, the combination of no

distress reaction plus support seeking is interpreted as suppression of expression; in this case, no positive emotional state at the end was expected.

Goodness of fit for Japanese girls. The results indicated that Japanese girls reacted with distress more often than did the German girls: Only 15.79% of the Japanese girls (3 of 19) did not show distress reactions (see Table 4). Two of 3 girls who did not react with distress displayed positive, the third negative regulation. Three of 4 girls who reacted with distress and did not seek maternal support ended up in a tense state; that is, they displayed avoidant regulation. A total of 55.55% of the girls who reacted with distress in distance from the mother ($n = 9$) looked for support and ended partly in a relaxed state.

The fit of the model also was significant for the Japanese, $\chi^2(1) = 5.33, p < .05$: 42.11% of the Japanese girls (8 of 19) displayed patterns that were not defined in the model. First, many Japanese girls who stayed close to their mothers reacted with distress ($n = 7$). The distance regulation seems to have a culture-specific meaning in regard to distress regulation. One Japanese girl displayed a pattern deviating from the model that was the same as for 2 German girls. The following sequence occurred: high distance to mother, no distress, support seeking, and relaxed emotional state. By extending the sequential model with the path “low distance-distress” and adjusting the expected frequencies ($p = .50$ and $q = .50$), the model fit for the Japanese sample is very strong, $\chi^2(1) = 15.21, p < .001$. A total of 94.74% of the Japanese girls (18 of 19) fit the model.

Culture-specific distribution of the regulation patterns. The distribution of the three regulation patterns, taking only the subjects with defined patterns into account including the extended model for the Japanese sample, is presented in Figure 1. The avoidant regulation pattern only appeared in the Japanese sample ($n = 3$), and the pattern of avoidant regulation is ignored for further analyses. The comparison between the distributions of the positive and negative regulation patterns yielded cultural differences, $\chi^2(1) = 4.21, p < .05$. German compared to Japanese girls displayed more positive (71.43%, $n = 10$; 33.33%, $n = 5$, respectively) and less negative emotion regulation (28.57%, $n = 4$; 66.67%, $n = 10$, respectively) (see Figure 1).

The sequential model including maternal response. A relationship between maternal reaction and the girls’ emotional state at the end is stronger for the German as compared to the Japanese sample; however, in both samples, the difference between the initial emotion reaction and the final emotional state was not significant: Fisher exact test: $\chi^2(1) = 2.72, ns$, for German

TABLE 3
Toddlers' Emotion Regulation: German Dyads

<i>Subject</i>	<i>Distance to Mother</i>	<i>Emotional Reaction</i>	<i>Support Seeking</i>	<i>Maternal Behavior</i>	<i>Emotional State at the End</i>
Positive emotion regulation patterns					
1	High	Distress	Support seeking	Contingent reaction	Relaxed
9	High	Distress	Support seeking	Contingent reaction	Relaxed
11 ^a	High	No distress	Support seeking	Contingent reaction	Relaxed
3 ^a	High	No distress	Support seeking	Noncontingent reaction	Relaxed
4	High	Distress	Eye contact		Relaxed
8	High	No distress	Eye contact		Relaxed
12	High	No distress	Eye contact		Relaxed
14	High	No distress	Eye contact		Relaxed
16	High	No distress	Eye contact		Relaxed
5	Low	No distress	Eye contact		Relaxed
10	Low	No distress	No support seeking		Relaxed
7	High	No distress	No support seeking		Relaxed
Negative emotion regulation patterns					
17	High	Distress	Support seeking	Contingent reaction	Tense
15 ^a	Low	Distress	Support seeking	Noncontingent reaction	Tense
2	High	Distress	Support seeking	Noncontingent reaction	Tense
13	Low	No distress	Support seeking	Noncontingent reaction	Tense
6	High	No distress	Support seeking	Noncontingent reaction	Tense

a. The girl's behavior did not fit the defined paths.

and $\chi^2(1) = .04, ns$, for the Japanese sample. If German mothers did not react in a contingent way (i.e., showing prompt reactions), 80% of the girls ($n = 5$) ended in a tense state. If German mothers reacted in a contingent way, the girls ended in a relaxed state in 75% of all cases ($n = 4$) (see Table 3). In contrast, it did not matter whether Japanese mothers reacted in a contingent

TABLE 4
Toddlers' Emotion Regulation: Japanese Dyads

<i>Subject</i>	<i>Distance to Mother</i>	<i>Emotional Reaction</i>	<i>Support Seeking</i>	<i>Maternal Behavior</i>	<i>Emotional State at the End</i>
Positive emotion regulation patterns					
18 ^a	Low	Distress	Support seeking	Contingent reaction	Relaxed
4	High	Distress	Support seeking	Contingent reaction	Relaxed
10	High	Distress	Support seeking	Noncontingent reaction	Relaxed
8 ^b	High	No distress	Support seeking	Contingent reaction	Relaxed
20	High	Distress	No support seeking		Relaxed
19	Low	No distress	No support seeking		Relaxed
Negative emotion regulation patterns					
1 ^a	Low	Distress	Support seeking	Contingent reaction	Tense
3 ^a	Low	Distress	Support seeking	Contingent reaction	Tense
9 ^a	Low	Distress	Support seeking	Noncontingent reaction	Tense
15 ^a	Low	Distress	Support seeking	Contingent reaction	Tense
16 ^a	Low	Distress	Support seeking	Contingent reaction	Tense
11	High	Distress	Support seeking	Contingent reaction	Tense
13	High	Distress	Support seeking	Noncontingent reaction	Tense
17	High	Distress	Support seeking	Contingent reaction	Tense
12	High	No distress	Support seeking	Contingent reaction	Tense
6	High	Distress	Eye contact		Tense
Avoidant regulation pattern					
2	High	Distress	No support seeking		Tense
7	High	Distress	No support seeking		Tense
5 ^a	Low	Distress	No support seeking		Tense

a. The girl showed the undefined pattern "low distance-distress." This path was accepted by extending the sequence model for the Japanese sample.

b. The girl's behavior did not fit the defined paths.

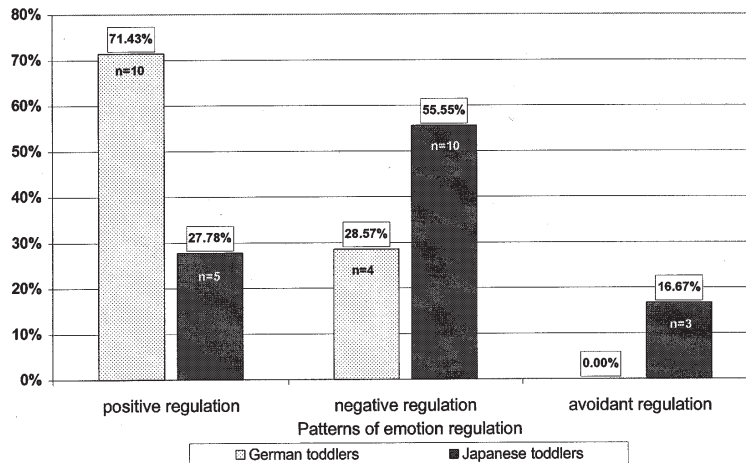


Figure 1: Japanese and German Toddlers' Patterns of Emotion Regulation

($n = 10$) or a noncontingent way ($n = 3$). Only about one third of the Japanese girls ended in a relaxed state (30% vs. 33.33%, respectively) (see Table 4).

Maternal sensitivity in the mother-child interaction. Japanese as compared to German mothers were more sensitive to their girls in the mother-child interaction: Japanese mothers, $M = 5.50$, $SD = .49$; German mothers, $M = 4.92$, $SD = .75$; $t(27.5) = 2.73$, $p < .05$. These results reflect a ceiling effect for the Japanese sample—the highest scale point was 6. This ceiling effect reduced the chance to differentiate clearly between more sensitive and less sensitive Japanese mothers.

Relationship between maternal sensitivity in the mother-child interaction and contingency in the playmate situation. The nonparametric 2×2 variance analysis (Kruskal-Wallis test) yielded a culture-specific pattern, $\chi^2(3) = 8.05$, $p < .05$: The German mothers showed greater cross-situational stability in their behavior. Mothers who reacted in a contingent way displayed more sensitivity (mean rank = 11.63, $n = 4$) as compared to the mothers who reacted in a noncontingent way toward their toddlers (mean rank = 4.30, $n = 5$), $\chi^2(1) = 3.87$, $p < .05$. The Japanese mothers' sensitivity in the mother-child interaction was independent of their contingency in the situation with the playmate, contingent reaction ($n = 9$): mean rank = 13.67; noncontingent reaction ($n = 3$): mean rank = 13.33.

Relationships between toddlers' emotion regulation and maternal sensitivity. Differences occurred in the nonparametric variance analysis that point to a culture-specific interaction effect, $\chi^2(3) = 6.86, p = .06$. The German girls who displayed negative regulation patterns also had less sensitive mothers (mean rank = 8.13, $n = 4$) compared to Japanese mothers of girls with negative regulation patterns (mean rank = 19.72, $n = 9$). The two groups of mothers whose toddlers displayed positive regulation did not differ in regard to the extent of their sensitivity: Japan dyads ($n = 5$), mean rank = 14.80; German dyads ($n = 10$), mean rank = 12.20.

DISCUSSION

The present study supports the functionalistic approach that toddlers' emotion regulation can be described as an interactive process while primary caregivers take the role of regulators. The goal of this study was to analyze the emotion regulation of 2-year-old girls in Germany and Japan by taking into account the interactive process between mother and child in a twofold way: Maternal sensitivity was studied to characterize mothers' behavior toward their children in a dyadic mother-child-interaction situation; furthermore, maternal contingency was studied to characterize the behavior of mothers when observing their child in interaction with the playmate. Both indicators were analyzed with respect to their function for the child's emotion regulation.

According to a functionalistic perspective, observation methods of mother-child interactions are necessary for studying the effects of mothers' sensitivity and contingency for the child's emotion regulation. The observation of mother-child interactions should make it possible to take into account the stream of actions within mother-child interactions to evaluate the emotional reactions, changes of emotional states, and related behavior strategies of the children. The psychological and thereby culture-specific meaning of observed behavior has to be evaluated because the same behavior may have different meanings in the same context (cf. Sroufe & Waters, 1977). Therefore, in line with previous studies on conditions of emotion regulation in children (Stenberg & Campos, 1990; Tronick, 1989; Weinberg & Tronick, 1996), functional behavior analysis served as the empirical basis for studying the usefulness of the sequential model for the analysis of emotion regulation of Japanese and German children.

However, some shortcomings of the study have to be mentioned. The measurement of emotional reactions also should take into account physiological variables to differentiate between children with high arousal, who

have to regulate their emotions with more effort, and children with lower arousal. We did not integrate a physiological parameter for technical reasons (i.e., we did not want to affect the quasi-natural interaction situation). However, physiological variables are of interest in regard to the duration and regulation of the negative emotions, and the level of arousal also may be based on temperamental differences. Temperamental factors affect the emotional reactivity but less the regulation of emotions (cf. Rothbart, Ziaie, & O'Boyle, 1992; Rubin, Coplan, Fox, & Calkins, 1995). Strong emotional reactions require a different quality of emotion regulation than weak arousal. Also, a child's temperament affects the interaction pattern between mother and child; such processes start very early in development and can affect the level of arousal, which again may affect parent behavior while both underlie culture-specific influences (Bornstein, 1989). Even if we know that the development of regulation is mostly mediated by the primary caretaker, we should not ignore the mutual interaction processes between child and caretaker and the influence of temperament on these interactions.

Due to the time-consuming procedures to carry out behavioral observations in two cultures (including, e.g., training of a team to carry out the study and training of raters to code the videotaped reactions), and due to the difficulties to enlarge the sample, the number of subjects of the present study was smaller than preferred. Furthermore, only girls were included in this study because such a small sample should be as homogenous as possible to concentrate on testing the theoretically interesting effects of mother-child variables. If boys had been included, homogeneity of the sample could not have been ascertained because gender differences in emotions, when confronted with the distress of another person, do already occur as early as 14 months of age (cf. Zahn-Waxler et al., 1992). Besides our interest in a homogenous sample, we wanted to increase the validity of our observational methods. The girls' presumably stronger expressions of empathy and distress facilitate the analyses of the observed emotions: The primary aim of this study was to test different sequential models in two cultures and not to test gender differences. However, in future research, a replication of this study including boys and girls should be carried out.

MODEL FIT

The sequential model was reduced from 24 paths to 8 paths based on the theoretical meaning of different paths and condensed to 3 regulation patterns. This model fits well for the German girls. The Japanese girls, however, deviated from the selected paths systematically in that they reacted with distress even if they stayed close to their mothers when the distress-inducing event

happened. This systematic result can be interpreted as a characteristic effect of the culture-specific socialization practices of Japanese mothers that are based on closer physical and also psychological proximity with their child, especially in infancy. Therefore, physical proximity as such is no guarantee for Japanese toddlers that they will feel secure in distressing situations, as is the case for German toddlers. The Japanese girls often tried to establish more physical contact with their mothers when distressed. Rearranging the model by this path, 88.89% of all girls fit the model, and only 4 girls (3 German girls and 1 Japanese girl) failed: The misfit occurred because 2 German and 1 Japanese girl looked for support without previous distress reaction and ended in a relaxed state. One reason for these deviations may be a methodological one: The distress reactions were evaluated directly after the distress-inducing event. If some children displayed or experienced distress reactions later (e.g., after more than 20 seconds), such reactions were no longer coded. Finally, 1 German girl reacted with distress while she was close to her mother; that is, she showed a pattern that was recognized as a typical pattern within the Japanese sample.

FEATURES OF TODDLERS' EMOTION REGULATION

Regarding the number of girls looking for support, it becomes clear that the overwhelming majority focused on the mother as a source of reference to regulate their negative emotions. This underlines the importance of the interactive process in emotion regulation in early childhood (cf. Friedlmeier, 1999; Malatesta-Magai, 1991; Parritz, 1996). Beyond this general result, several culture-specific differences occurred. Although the Japanese girls were only tendentially less distant from their mothers compared to the German girls, it should be noted that a different quality of distance regulation occurred that was not taken into account for the analyses of the interactions as reported here. A second analysis of the interactions showed that the German girls who displayed low distance from their mother moved back and forth between playmate and mother, whereas Japanese girls who displayed low distance approached and stayed closer to their mothers in a more continuous way. This way, the Japanese children made the playmate come closer to continue the play.

Also, the observation of the children in both cultures showed that the situation was apparently more stressful for the Japanese girls. This can be concluded from several results. As compared to the German toddlers, Japanese children displayed a distress reaction more often (Trommsdorff, 1995a); they also did not use eye contact as a mean of emotional reference but rather approached their mothers, although they were already closer to their mothers

before the distress-inducing event happened. Finally, they were markedly less relaxed at the end of the experimental situation.

The question of whether the experimental situation was functionally equivalent for both cultural groups cannot be answered definitely. The social constellation—playing with a nonfamily member (a less familiar person) in the presence of the mother—is realistic within both countries. However, the instruction given to the mothers not to intervene if the child does not ask may have reduced the functional equivalence of this situation in two ways: (a) If one assumes that Japanese as compared to German mothers protect their children more against negative emotions, Japanese mothers may have intervened earlier and thus have prevented the stronger distress reactions of their toddlers in a natural situation free from instructions. (b) The instruction to mothers not to intervene actively may have been interpreted in a more rigorous way by Japanese mothers (see Grossmann & Grossmann, 1996). These methodological limitations emphasize the necessity of taking into account this aspect in future research and possibly of complementing the laboratory studies by natural observations.

PATTERNS OF EMOTION REGULATION AND THE INTERACTIVE PROCESS

The comparison of the distribution of regulation patterns yielded that German toddlers regulated the distress-evoking situation in a qualitatively different way as compared to Japanese toddlers. Apparently, Japanese children reacted to this situation in a more negative emotional way and were less relaxed at the end of the situation. This stronger negative experience can be explained neither by lack of instrumental reactions—they mostly looked for maternal support—nor by lack of support from their mothers. Japanese mothers reacted in a warm and prompt way to their children and did not differ in regard to those Japanese mothers whose girls displayed positive regulation. Japanese mothers displayed a contingent reaction more often than the German mothers did. In contrast to the Japanese sample, German toddlers' regulation depended more on the maternal reaction; that is, noncontingent maternal response was related to the child's negative regulation in the German sample.

The avoidant regulation pattern only occurred in the Japanese sample. However, due to the small number of subjects, no further analyses could be applied. It will be an interesting question for further studies to test whether mothers of children with avoidant patterns are less sensitive than mothers of children with negative patterns.

MOTHERS' SENSITIVITY

The result that Japanese mothers reacted more sensitively to their girls as compared to the German mothers is in line with other studies (cf. Azuma, 1986; Trommsdorff & Friedlmeier, 1993, 1999). Comparisons of mothers' sensitivity as compared to contingency yielded an analogous relationship: Low sensitivity was related to negative regulation and vice versa for the German dyads, whereas Japanese mothers' sensitivity had no impact on children's regulation. They were even somewhat more sensitive for toddlers with negative regulation as compared to toddlers with positive regulation. The lack of relationship for the Japanese sample has to be interpreted carefully because this could be an artifact due to the ceiling effect in regard to mothers' sensitivity.

CONCLUSIONS

The differences of toddlers' emotion regulation and the relationship to maternal reaction indicate that the results can be best interpreted as culture-specific interpersonal cycles.

Japanese mothers pursue the child-rearing goal that the child feels as one with another person in an in-group situation. In this sense, the child is expected to feel the pain and sadness of the playmate and consequently react in an emotional way—whether it be empathy or distress. At the same time, the feeling of oneness with the child encourages the mother to protect the child if he or she experiences negative emotional states. To the extent that the child turns to the mother for support in this situation, the mother's reaction is ambiguous. On one hand, she calms the child, and on the other hand, she makes the child more tense, because the mother represents the agent who most emphasizes the importance of empathy.

German mothers pursue the child-rearing goal that the child feels the partner's sadness. At the same time, the mother expects the child to regulate emotional experiences in a progressively autonomous way (e.g., the child should be able to comfort the partner). This expectation may induce the mother not to react to the child's emotional state but rather to emphasize the partner's state. The more the child turns to the mother for support in this situation and the more the mother perceives this reaction as immature, the more roughly she reacts by neglecting the child's emotional reaction.

Beyond the interactive process within the same situation, maternal sensitivity in the mother-child interaction was seen as a necessary condition for children's emotion regulation. These results indicate culture-specific implications for further development of emotion regulation. The significant

relationship between low maternal sensitivity and toddlers' negative regulation may end in a distant relationship between mother and child with negative consequences for the development of emotion regulation. The generally more supportive interaction of Japanese mothers with their toddlers who showed negative emotion regulation does not allow a prediction of the same developmental trends but rather raises the question of whether their children will be more successful in regulating negative emotions later on. Some preliminary results support this line of reasoning (Trommsdorff & Friedlmeier, 1999). However, such questions can only be answered in cross-cultural longitudinal studies.

REFERENCES

- Ainsworth, M.D.S. (1992). A consideration of social referencing in the context of attachment theory and research. In S. Feinman (Ed.), *Social referencing and the social construction of reality in infancy* (pp. 349-370). New York: Plenum.
- Ainsworth, M.D.S., Bell, S. M., & Stayton, D. J. (1971). Individual differences in strange situation behavior of one-year olds. In H. R. Schaffer (Ed.), *The origins of human relations* (pp. 17-57). London: Academic Press.
- Ainsworth, M.D.S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment. A psychological study of the strange situation*. Hillsdale, NJ: Lawrence Erlbaum.
- Azuma, H. (1984). Secondary control as a heterogeneous category. *American Psychologist*, *39*, 970-971.
- Azuma, H. (1986). Why study child development in Japan? In H. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Child development and education in Japan* (pp. 3-12). New York: Freeman.
- Barratt, M. (1996, July 12-16). *Maternal responsiveness to infants signals in Japan and the United States*. Paper presented at the ISSBD conference in Quebec, Canada.
- Batson, C. D. (1990). How social an animal? *American Psychologist*, *45*, 336-346.
- Batson, C. D., Fultz, J., & Schoenrade, P. A. (1987). Distress and empathy: Two qualitatively distinct vicarious emotions with different motivational consequences. *Journal of Personality and Social Psychology*, *55*, 19-40.
- Befu, H. (1986). The social and cultural background of child development in Japan and the United States. In H. Stevenson, H. Azuma, & K. Hakuta (Eds.), *Child development and education in Japan* (pp. 13-27). New York: Freeman.
- Bornstein, M. H. (1989). Cross-cultural developmental comparisons: The case of Japanese-American infant and mother activities and interactions. What we know, what we need to know, and why we need to know. *Developmental Review*, *9*, 171-204.
- Bowlby, J. (1982). *Attachment and loss, Vol.1 Attachment* (2nd ed.). New York: Basic Books.
- Campos, J. J., Campos, R. G., & Barrett, K. C. (1989). Emergent themes in the study of emotional development and emotion regulation. *Developmental Psychology*, *25*, 394-402.
- Caudill, W. A., & Schooler, C. (1973). Child behavior and child rearing in Japan and the United States: An interim report. *Journal of Nervous and Mental Disease*, *157*, 323-338.
- Choi, S. H. (1992). Communicative socialization processes: Korea and Canada. In S. Iwawaki, Y. Kashima, & K. Leung (Eds.), *Innovations in cross-cultural psychology* (pp. 103-122). Amsterdam, the Netherlands: Swets & Zeitlinger.
- Dodge, K. A., & Garber, J. (1991). Domains of emotion regulation. In K. A. Dodge & J. Garber (Eds.), *The development of emotion regulation and dysregulation* (pp. 3-14). Cambridge, UK: Cambridge University Press.

- Eisenberg, N. (1986). *Altruistic emotion, cognition, and behavior*. Hillsdale, NJ: Lawrence Erlbaum.
- Eisenberg, N., Fabes, R. A., Miller, P. A., Shell, R., Shea, C., & May-Plumlee, T. (1990). Preschoolers' vicarious emotional responding and their situational and dispositional prosocial behavior. *Merrill-Palmer Quarterly*, *36*, 507-529.
- Eisenberg, N., & Strayer, J. (1987). Critical issues in the study of empathy. In N. Eisenberg & J. Strayer (Eds.), *Empathy and its development* (pp. 3-14). New York: Cambridge University Press.
- Feinman, S. (1992). What do we know and where shall we go? Conceptual and research directions in social referencing. In S. Feinman (Ed.), *Social referencing and the social construction of reality in infancy* (pp. 371-406). New York: Plenum.
- Friedlmeier, W. (1993). *Entwicklung von Empathie, Selbstkonzept und prosozialem Handeln in der Kindheit* [Development of empathy, self-concept, and prosocial behavior in childhood]. Konstanz, Germany: Hartung-Gorre.
- Friedlmeier, W. (1995). Subjektive Erziehungstheorien im Kulturvergleich [Subjective child-rearing theories in cultural perspective]. In G. Trommsdorff (Ed.), *Kindheit und Jugend im Kulturvergleich* (pp. 43-64). Weinheim, Germany: Juventa.
- Friedlmeier, W. (1996). Entwicklung der Emotionsregulation aus soziokultureller Perspektive [Development of emotion regulation in sociocultural perspective]. In K. U. Etrich & M. Fries (Eds.), *Lebenslange Entwicklung in sich wandelnden Zeiten* (pp. 31-37). Leipzig, Germany: Verlag Empirische Pädagogik.
- Friedlmeier, W. (1999). Sozialisation der Emotionsregulation [Socialization of emotion regulation]. *Zeitschrift für Soziologie der Erziehung und Sozialisation*, *1*, 35-51.
- Friedlmeier, W., & Trommsdorff, G. (1998). Japanese and German mother-child interactions in early childhood. In G. Trommsdorff, W. Friedlmeier, & H.-J. Kornadt (Eds.), *Japan in transition. Social and psychological aspects* (pp. 217-230). Lengerich, Germany: Pabst Science.
- Greenspan, S., & Greenspan, T. (1985). *First feelings: Milestones in the emotional development of your baby and child*. New York: Viking.
- Grossmann, K. E., & Grossmann, K. (1993). Emotional organization and concentration on reality from an attachment theory perspective. *International Journal of Educational Research*, *19*, 541-554.
- Grossmann, K., & Grossmann, K. E. (1996). Kulturelle Perspektiven der Bindungsentwicklung in Japan und Deutschland [Cultural perspectives about development of attachment in Japan and Germany]. In G. Trommsdorff & H.-J. Kornadt (Eds.), *Gesellschaftliche und individuelle Entwicklung in Japan und Deutschland* (pp. 215-235). Konstanz, Germany: Universitätsverlag Konstanz.
- Grossmann, K. E., Grossmann, K., & Schwan, A. (1986). Capturing the wider view of attachment: A reanalysis of Ainsworth's strange situation. *International Journal of Behavioral Development*, *4*, 157-181.
- Hoffman, M. L. (1975). Developmental synthesis of affect and cognition and its interplay for altruistic motivation. *Developmental Psychology*, *11*, 607-622.
- Kâğıtçibâsi, C. (1996). *Family and human development across cultures: A view from the other side*. Mahwah, NJ: Lawrence Erlbaum.
- Kopp, C. B. (1989). Regulation of distress and negative emotions: A developmental view. *Developmental Psychology*, *25*, 343-354.
- Kornadt, H.-J., & Trommsdorff, G. (1990). Naive Erziehungstheorien Japanischer Mütter—Deutsch-Japanischer Kulturvergleich [Subjective child-rearing theories of Japanese mothers—A cross-cultural comparison between Japan and Germany]. *Zeitschrift für Sozialisationsforschung und Erziehungssoziologie*, *2*, 357-376.
- Kornadt, H.-J., & Trommsdorff, G. (1997). Sozialisationsbedingungen von Aggressivität in Japan und Deutschland [Conditions of socialization for aggressiveness in Japan and Germany]. In G. Foljante-Jost & D. Rössner (Eds.), *Gewalt unter Jugendlichen in Deutschland und Japan—Ursachen und Bekämpfung* (pp. 27-51). Baden-Baden, Germany: Nomos Verlag.
- Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American Psychologist*, *46*, 819-834.

- Lebra, T. S. (1976). *Japanese patterns of behavior*. Honolulu: University of Hawaii Press.
- Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton & E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development*, 50, 66-106.
- Malatesta-Magai, C. (1991). Development of emotional expression during infancy: General course and patterns of individual difference. In K. A. Dodge & J. Garber (Eds.), *The development of emotion regulation and dysregulation* (pp. 49-68). Cambridge, UK: Cambridge University Press.
- Mangelsdorf, S. C., Shapiro, J. R., & Marzolf, D. (1995). Developmental and temperamental differences in emotion regulation in infancy. *Child Development*, 66, 1817-1828.
- Masters, C. (1991). Strategies and mechanisms for the personal and social control of emotion. In K. A. Dodge & J. Garber (Eds.), *The development of emotion regulation and dysregulation* (pp. 182-207). Cambridge, UK: Cambridge University Press.
- Mizuta, I., Zahn-Waxler, C., Cole, P. M., & Hiruma, N. (1996). A cross-cultural study of preschoolers' attachment: Security and sensitivity in Japanese and US dyads. *International Journal of Behavioral Development*, 19, 141-159.
- Parritz, R. H. (1996). A descriptive analysis of toddler coping in challenging circumstances. *Infant Behavior and Development*, 19, 171-180.
- Parritz, R. H., Mangelsdorf, S., & Gunnar, M. R. (1992). Control, social referencing, and the infant's appraisal of threat. In S. Feinman (Ed.), *Social referencing and the social construction of reality in infancy* (pp. 209-288). New York: Plenum.
- Rothbart, M. K., Ziaie, H., & O'Boyle, C. G. (1992). Self-regulation and emotion in infancy. In N. Eisenberg & R. A. Fabes (Eds.), *Emotion and its regulation in early development. New Directions for Child Development* (Vol. 55, pp. 7-23). San Francisco: Jossey-Bass.
- Rubin, K. H., Coplan, R. J., Fox, N. A., & Calkins, S. D. (1995). Emotionality, emotion regulation, and preschoolers' social adaptation. *Development and Psychopathology*, 7, 49-62.
- Sroufe, A. (1983). Infant-caregiver attachment and patterns of adaptation in preschool: The roots of maladaptation and competence. In M. Perlmutter (Ed.), *Minnesota symposium on child psychology, Vol. 16 Development and policy concerning children with special needs* (pp. 41-83). Hillsdale, NJ: Lawrence Erlbaum.
- Sroufe, A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development*, 48, 1184-1199.
- Stenberg, C. R., & Campos, J. J. (1990). The development of anger expressions in infancy. In N. L. Stein, B. Leventhal, & T. Trabasso (Eds.), *Psychological and biological approaches to emotion* (pp. 247-282). Hillsdale, NJ: Lawrence Erlbaum.
- Thompson, R. A. (1990). Emotion and self-regulation. In R. A. Thompson (Ed.), *Nebraska Symposium on Motivation Socioemotional development. Current theory and research in motivation* (Vol. 36, pp. 367-467). Lincoln: University of Nebraska Press.
- Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development*, 52, 2-3.
- Tinsley, H.E.A., & Weiss, D. J. (1976). Interrater reliability and agreement of subjective judgments. *Journal of Counseling Psychology*, 22, 358-376.
- Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-in-group relationships. *Journal of Personality and Social Psychology*, 54, 323-338.
- Trommsdorff, G. (1995a). Empathy and prosocial action in cultural environments: A cross-cultural analysis. In T. Kindermann & J. Valsiner (Eds.), *Construction of self and social relationships* (pp. 112-146). Hillsdale, NJ: Lawrence Erlbaum.
- Trommsdorff, G. (1995b). Parent-adolescent relations in changing societies: A cross-cultural study. In P. Noack, M. Hofer, & J. Youniss (Eds.), *Psychological responses to social change Human development in changing environments* (pp. 189-218). Berlin: De Gruyter.
- Trommsdorff, G. (1997). Familie und Eltern-Kind-Beziehung in Japan [Family and parent-child relationship in Japan]. In B. Nauck & U. Schönplflug (Eds.), *Familie in verschiedenen Kulturen* (pp. 44-63). Stuttgart, Germany: Enke.

- Trommsdorff, G., & Friedlmeier, W. (1993). Control and responsiveness in Japanese and German mother-child interactions. *Early Development and Parenting*, 2, 33.1-33.14.
- Trommsdorff, G., & Friedlmeier, W. (1999). *Regulation of emotions and mother-child relationships A comparison between Japanese and German preschoolers*. Manuscript submitted for publication.
- Tronick, E. Z. (1989). Emotions and emotional communication in infants. *American Psychologist*, 44, 112-128.
- Walden, T. A. (1991). Infant social referencing. In K. A. Dodge & J. Garber (Eds.), *The development of emotion regulation and dysregulation* (pp. 69-88). Cambridge, UK: Cambridge University Press.
- Webster, M., & Foschi, M. (1992). Social referencing and theories of status and social interaction. In S. Feinman (Ed.), *Social referencing and the social construction of reality in infancy* (pp. 269-296). New York: Plenum.
- Weinberg, M. K., & Tronick, E. Z. (1996). Affective reactions to the resumption of maternal interaction after the still-face. *Child Development*, 67, 905-914.
- Zahn-Waxler, C., Radke-Yarrow, M., Wagner, E., & Chapman, M. (1992). Development of concern for others. *Developmental Psychology*, 28, 126-136.

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