Control and responsiveness in Japanese and German mother- child interactions

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The present study aims to examine culturally invariant and culture-specific patterns of mother-child interaction, and, more specifically, to explore the stability and change of such interactions in structurally different situations. Starting from a control theoretical framework (primary and secondary control), we expected that differences in stress induced by differently structured achievement demands would affect mother-child interactions in Japan and Germany differently. For Japanese as compared to German mothers, less primary control and more responsiveness was expected as a result of the cultural value of social orientation. The sample consisted of 20 mother-child dyads (5-year-old girls) in each culture. The experimental procedure confronted each mother-child dyad with three different situations varying with respect to induced stress (from no stress to high stress). The mother-child interactions were videotaped and analysed in regard to control behaviour and responsiveness. Cultural differences with respect to control behaviour were observed in the expected direction only for high-stress situations. Also, Japanese mothers were more responsive in all three situations. Mother's responsiveness was related to child's secondary control in both cultures. Furthermore, Japanese children showed more secondary control than German children.

Key words: Mother-Child interaction, control orientation, cross-cultural comparison, responsiveness.

It is often suggested that people strive to gain control and to avoid loss of control because of a basic need for security. Much research investigates people's perceptions of control and their strategies to gain control in the event of a perceived loss of control or a deficiency in self-efficacy (e.g. Abramson *et al.*, 1978; Bandura, 1977; Flammer, 1990; Lazarus and Folkman, 1984). The various studies on control illustrate the diversity of theoretical

approaches and the difficulties in the measurement of control. Cross-cultural studies have shown cultural differences with respect to the preference for 'internal' or 'external' locus of control, for example the Japanese believe more in external control than Americans (e.g. Parsons and Schneider, 1974).

These cultural differences in control suggest that the basic need for control manifests itself in different behaviour and beliefs which, however, cannot be accounted for by the traditional Western concept of 'internal vs external locus of control' (Rotter, 1966). Rothbaum *et al.* (1982), Weisz *et al.*

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(1984) and Weisz (1990) differentiate between 'primary' and 'secondary' control. 'Primary control' is understood as an '... attempt to gain control by influencing existing realities ...'. In secondary control, individuals attempt to align themselves with existing realities, leaving them unchanged but exerting control over their personal psychological impact' (Weisz *et al.*, 1984, p. 955). When the person's belief in control is threatened, for example by perceived stress, the person will try to reestablish control either by exerting 'primary control', that is, 'change the environment to fit', or by 'secondary control', that is, 'change the self so as to fit more effectively with the environment' (Rothbaum *et al.*, 1982, p. 11). These definitions conform to the general notion that control means causing an intended event—either by changing external events or by changing one's internal condition.

In the present Anglo-American literature, 'primary control' has been studied more extensively than 'secondary control'. This may be due to the fact that 'primary control' is the most common type of control in a culture in which individual autonomy and self-actualization are highly valued. In contrast, in Asian cultures, for example in Japan, group orientation and the alignment of the self with others is preferred (Azuma, 1984). This may be the basis for a preference for 'secondary control'. Therefore, the cross-cultural perspective should be taken into account when examining questions concerning the need for control and strategies to obtain or maintain control.

The need to gain control may also depend on the kind of situational demand; one should expect a higher incidence of the culturally dominant control orientation in more uncertainty-inducing, stressful situations (just as more individual differences occur under stress). In stressful situations, more primary and less secondary control should be observed for individualistic cultures than for group-oriented cultures.

Culture-specific conditions of personality development may influence the individual's control orientation (Weisz *et al.*, 1984; Trommsdorff, 1989b). Especially the mother's own control orientation, her controlling behaviour, and her responsiveness in interaction with her child may influence the way the child relates to the environment and develops control-related values, attitudes and behaviour. For example, mothers high in secondary control could solve potential conflicts with their children relatively soon; the children easily compromised.

From the point of view of developmental psychology, a basic condition for 'successful' social and emotional development is the satisfaction of the child's need for security (Kagan, 1984). This need is closely related to the child's need for control. From the point of view of attachment theory, the child's need for security is a basic motive which can be fulfilled by the establishment of secure attachment with the mother (Bowlby, 1969; Ainsworth, 1989). Attachment and a related working model are built up quite early in the development of the infant. In this process, the responsiveness of the parent plays a most important role. A responsive parent understands the needs of the child and reacts to these needs appropriately—that is, in a way that serves to help the child regain a feeling of security and thus control.

Here, we start from the assumption that even though control and responsiveness are related to the child's need for control, both represent different concepts and imply different cognitive, emotional and behavioural phenomena. Primary or secondary control may occur simultaneously with high responsiveness. Depending on the underlying goals, responsiveness may be functional in influencing one's environment (primary control); it may also be functional in better accommodating to the environmental needs (secondary control), for example by better understanding and serving the goals of other persons. Here, culture-specific modes may exist that are related to culture-specific phenomena in intimate relations (Trommsdorff, 1991) or interpersonal communication. One example is the different use of eye contact in Western cultures and in Japan. While in Western cultures a normal interaction is accompanied by direct eye contact, in Japan this non-verbal communication is rather avoided since it means an intrusion into the other's privacy.

The mode of children's control relates to the mode of the mother's control as a result of learning processes (such as direct influence or modelling). Accordingly, primary as compared to secondary control of mothers should induce less accommodating behaviour (secondary control) in the children. A similar relation can also be expected between mother's responsiveness and her child's accommodating behaviour: a child experiencing high responsiveness from the mother may experience more fulfillment of security and attachment needs and thus less negative emotions, and less desire to challenge the balanced self-other relation by exerting control over the environment or by causing harm to the attachment figure. For the child who experiences high maternal responsiveness, behaving

in opposition to the mother's needs and goals may endanger the harmonious emotional bond with the mother. Therefore, more secondary control, acceptance of task requirements, and less negative emotions may be expected for children growing up with highly responsive mothers.

According to our discussion above, no clear relation between mother's control and responsiveness can be predicted. More or less responsive mothers may use either primary or secondary control depending on their actual goals. One has to find out whether the mother intends to fulfill the needs of her *child* or whether she would rather fulfill her *own* needs. This is not easy since the same behaviour may be related to different goals. Certain behaviour—such as independence training—can serve either the child or the parents' goals. The kind of goals pursued, presumably, depend on inter-individual and situational differences which may be accentuated by cultural values. In fact, some studies point out that cultural differences which are related to more primary vs more secondary control exist with respect to the practice of a more self-serving vs a more child-oriented socialization. As Trommsdorff (1989b) has shown, German mothers experience significantly more self-related emotions (such as anger) than Japanese mothers, who rather experience child-oriented emotions (such as pity) in the case of a conflict with their children.

Cross-cultural studies on child rearing in Japan as compared to Western countries such as the USA or Germany demonstrate clearly different socialization goals and practices. While Western industrialized cultures are oriented towards fostering independence and individualism in the child, child rearing in Japan focuses on the child's obedience and accommodation to social expectations (Azuma, 1984; Befu, 1986; DeVos, 1973; Hendry, 1986; Kornadt and Trommsdorff, 1990; Kornadt *et al.*, 1992; Lebra, 1976; Stevenson *et al.*, 1986; Trommsdorff, 1983, 1986, 1989b, 1993a,b). This result should not be interpreted in terms of Western thinking. While in Western countries obedience is often related to low SES and is rather rejected by students, for Japanese youth it means something different, namely a highly preferred positive relationship with one's parents (Trommsdorff, 1986).

These differences in child rearing goals and practices are reflected in different types of mother-child interaction (e.g. Caudill and Weinstein, 1969; Morikawa *et al.*, 1988; Otaki *et al.*, 1986). The overall results of these studies may be generalized in the following way. The Japanese mother-child

interaction is characterized by a strong emotional bonding and a feeling of 'one-ness' ('*ittaikan*') (Azuma, 1984), while in the United States or in Germany, mother and child act as separate entities, pursuing the cultural goals of individuality and autonomy (Kornadt and Trommsdorff, 1990). Accordingly, more responsiveness should be expected in Japanese mother-child interactions. Analyses of naive theories of child rearing indeed demonstrate that Japanese mothers are more responsive to their children's needs than German mothers. The Japanese in comparison to the German children responded to their mothers with more cooperation (e.g. they accepted their mothers' demands more readily) (Kornadt *et al.*, 1992).

These cultural differences can be seen in a framework of individual vs social orientation (Triandis *et al.*, 1988). As Trommsdorff (1989b) has suggested, there may be relations between individual orientation and primary control on the one hand and social (group) orientation and secondary control on the other hand. For our present purpose, in an individual-oriented culture, independence and fulfillment of individual needs are not only relevant socialization goals for children but also may be characteristic orientations of mothers. These are reflected in related child rearing behaviour such as direct control, making the child follow mother's instructions, and directly facing conflicts of interests in mother-child interactions. In contrast, for a group-oriented culture, one may assume that accommodation to social demands (of the group) may be an important educational goal; this may be reflected in more secondary control on the part of mothers, such as more indirect influence attempts, more implicit mutual understanding, and more harmonious interaction accommodating to the children's needs. This behavioural pattern presumably would be based on more sensitivity to the other person's needs.

Accordingly, the hypotheses underlying the present study are: in a more social-oriented culture like Japan, as compared to a more individualistic culture like Germany, mother-child interactions will be characterized more by secondary control and responsiveness. Since the need for security is accentuated more in stressful situations that threaten control and emotional stability, we expect that cultural differences in control and responsiveness will be more pronounced under conditions of stress.

A mother's behaviour is not only influenced by culture and situation but also by the child with whom she interacts. That is why the present

study will also focus on the child's behaviour and on aspects of the mother-child interaction relevant to a better understanding of control orientation and responsiveness. Therefore, mothers' control and responsiveness behaviour will be examined for relations to their children's control behaviour, emotional state and task involvement. Since either primary or secondary control may serve as the dominant control orientation, both may be related to task involvement. However, in the case of threatened security needs, the child is prevented from task involvement and it first tries to have his or her emotional balance restored. A responsive mother can serve this need. Thus, we expect more positive emotions and task involvement for children of responsive mothers, especially in highly stressful situations.

Since it is not known how primary and secondary control orientation are transmitted in the process of socialization, the present study intends to clarify possible individual and cross-cultural differences in the mothers' behaviour towards their children, and in patterns of mother-child interaction. According to the control theory of Weisz *et al.* (1984), we expect mothers high in primary control to attempt to influence and guide their children and mothers high in secondary control to accommodate more to their children's behaviour and rely more on implicit mutual understanding. According to attachment theory (Bowlby, 1969; Ainsworth, 1989), we expect that mothers high in responsiveness will be successful in providing emotional security for their children and will balance their children's needs for security and exploration. These hypotheses postulate universal relations between mothers' and children's control orientation and control behaviour on the one hand, and between mothers' responsiveness and children's emotional stability and task involvement on the other hand. Beyond individual differences, cultural differences will be studied in order to test these hypotheses. Cross-cultural methods are needed to increase the variance of the relevant variables and to test these hypotheses more rigorously (Trommsdorff, 1989a).

To summarize, the present study attempts to clarify whether and to what extent mothers from a group-oriented and those from an individualistic culture differ with respect to control and responsiveness, whether this is influenced by induced stressfulness of situational demands, and how this relates to patterns of mother-child interactions.

METHODS

Sample

Japan was selected as a culture representing group orientation and Germany as an individualistic culture. Both cultures represent highly modern, industrialized societies and they differ with respect to their value orientations. In each culture, a sample of 20 mother-child pairs was selected. The children (all girls) were 5 years old and were recruited from middle-class kindergartens (in Yokohama and in Konstanz).

Procedures

Each mother-child dyad was observed in three situations differing with respect to situational demands: (1) no specific demands (free interaction); (2) a difficult task for the child (mild stress); (3) an unsolvable task for the child (high stress). The experiments took place during 20 minutes of interaction in the playroom of the kindergarten. The subject's behaviour was videotaped by a hidden camera. Identical materials and tasks were used in both cultures. The appropriateness of the methods as regards cultural differences was established through pilot studies in both cultures. Accordingly, in these studies, the appropriateness and equivalence of the situations, the tasks and the materials used was ensured. The directions for the procedure of the mother-child interaction were translated and then translated back as a check.

Free interaction (Situation 1)

The mother and child were led into the room by a student who informed them that the playmate was late and asked that they please wait for her for a couple of minutes. After this, the student left the mother and child by themselves for 3 minutes.

In the subsequent two situations, children were confronted with two tasks that represented a challenge for this age group. The playmate (an 18-year-old confederate) directed the instructions for the task exclusively towards the child. During this, the mother sat at the table together with the child. If the mother asked any questions, the playmate gave the instruction that it was up to her.

Mild Stress (Situation 2)

After about 3 minutes of free play, the playmate entered the room and set down two picture stories ('Picnic' and 'Thief') from the subtest 'Arranging

Pictures' of the HAWIK (Hamburg-Wechsler Intelligence Test for Children) for 7-9-year-old children (Hardesty and Priester, 1966). First, the playmate explained the task to the child on the basis of a comparable picture story that she also had with her. She required the child to put the cards into a meaningful order. She laid the picture stories to be worked on in two stacks in front of the child, excused herself, and left the room.

High Stress (Situation 3)

After about 5 minutes, the playmate returned and showed the child a simple picture she had painted some days ago and which could normally be painted by a 5-year-old child if there was sufficient time. However, here the child was hardly able to complete the simple painting on account of severe time restriction (see below). The playmate handed the necessary materials to the child and asked her to make a replication of it in a given amount of time using coloured paper, a pair of scissors and glue. The playmate brought a large hourglass over to the table and explained to the child that the picture was to be completed by the time the sand in the hourglass had flowed from the top section to the bottom twice. The child or the mother was to turn the hourglass over after the sand had flowed through the first time. In order to emphasize the time factor, the playmate had the child begin after she said: 'Ready, set, go!'. Then she excused herself again and left the room. The playmate took the picture away when the hourglass had run out (after 6 minutes). Finally, the child got her picture back and was allowed to take it home with her.

Categories

Mothers' Behaviour

'Control behaviour' of the mother was rated on a six-point scale in both of the 'conflict situations': 1=very primary, 2=somewhat primary, 3=more primary than secondary, 4=more secondary than primary, 5=somewhat secondary, 6=very secondary. An important criterion for the rating was the type of goal orientation the mother displayed. If she intervened and attempted to help the child to find the correct solution and/or to motivate the child to complete the task, it was classified as primary control; if the mother gave in to the child, i.e. adjusted her goal orientation to match the will of the child and considered the solution of the task less important, it was classified as secondary control.

'Responsiveness' of the mother was rated on a six-point scale for all three situations: 1=non-responsive. . . , 6=highly responsive. The regularity and promptness with which the mother reacted to the child's questions, actions and emotional states were decisive for the rating. The more sensitively the mother reacted to the child's signals (e.g. friendly; positive emotions; focusing on child's problems and needs) the higher her responsiveness was rated.

In addition to the two main measures, more specific maternal behaviour strategies were observed that contain aspects of both of the global constructs:

'Demanding intervention'. The mother actively intervened and directed the child while the child was solving the problem, even if the child did not request her activity. For example, the mother gave orders and instructions such as 'Do it like this!'. Or the mother's sentence began with 'You have to . . .'. Or, for example, her voice indicated impatience.

'Encouraging intervention'. The mother actively intervened by giving tips, making suggestions and asking questions. For example, without prescribing, the mother suggested the possibility of doing something; she formulated her statements: 'You could . . .' or 'That must be right, hmm?'.

'Interest'. The mother did not intervene when the child was solving the problem. She watched the child's actions attentively and/or commented on the child's activity. She put questions to the child that expressed her interest but that were not intended as intervention, for example 'Oh, I see! You're putting the roof on at the same time'.

'No interest'. The mother did not make any comments and on the whole did not watch the child's action. For example, she leant back, looked around the room or at the table.

The rater noted first which of the four categories occurred. In a second step the categories were ordered hierarchically depending on the duration of each type of behaviour. The most and second most frequent behaviour were taken into consideration for the analyses of this study.

Eye Contact

Eye contact is an interaction variable; both interaction partners look at each other at the same time, thus engaging in non-verbal communication. The occurrence of eye contacts in task-demanded situations is not very high. Therefore, only the

frequency of eye contact between mother and child was recorded on a six-point scale (number of eye contacts) for all three situations.

Child Variables

'Control behaviour' was rated on a six-point scale in both of the 'conflict situations': 1=very primary. . . , 6=very secondary; this scale was thus identical to the mother's scale. An important criterion for the rating was the child's willingness to cooperate. If the child ignored the mother's directions or even protested or refused to be interrupted, the behaviour was classified as 'primary control'; if the child readily accepted and took the mother's suggestions into consideration, it was rated as 'secondary control'. 'Involvement' measured the intensity with which the child worked on the task on a six-point scale: 1=the child hardly concentrated on the task and was easily distracted. . . , 6=the child concentrated on the task very much and tried to complete the task even if difficulties arose. 'Emotional state' measured the quality of the child's emotional expression, especially the child's satisfaction (1=negative or dissatisfied. . . , 6=positive or satisfied).

Data Analyses

Scoring of Categories

The ratings for the qualitative evaluation were done by natives of the respective cultures. As a check, the Japanese video recordings were translated into German and the German rater did a second rating for the Japanese sample. The second rating for the German sample was done by another German rater. The interrater reliabilities were determined at the item level by intercorrelations. After rerating five variables (German sample: eye contact in situation 1; involvement and emotional state of the child in situation 3; Japanese sample: responsiveness; second most frequent behaviour of the mother in situation 3), the range of Pearson r for scale items was 0.67–1.0 for the Japanese and 0.66–0.88 for the German sample and the range of Cohen's k for nominal data was 0.60–1.0 for the Japanese and 0.62–0.81 for the German sample. Because of technical problems with videotaping, the variables for situation 1 could only be rated for 10 Japanese and 17 German mother-child dyads.

Statistical Analyses

ANOVAs were used because the situation- and culture-specific variances of control behaviour

and responsiveness of mothers were heterogeneous. Therefore, the two variables 'control behaviour' and 'responsiveness' of mothers were dichotomized by median split for each culture and each situation. We were unable to compute three-way ANOVAs (e.g. culture $\times$ responsiveness $\times$ situation) for the following reasons. It would have been necessary to differentiate between three groups of mothers (e.g. consistently high, consistently low and inconsistently responsive mothers). The expected number of Ss in the cells was lower than 10. Therefore, we used two-way ANOVAs (culture $\times$ situation, responsiveness $\times$ situation, control $\times$ situation).

RESULTS

Influence of Culture and Type of Situation on Mothers' Behaviour

For control behaviour, the two-factor ANOVA (culture $\times$ situation) with repeated measures on the situation factor showed a significant interaction effect. No cultural differences appeared in situation 2. In situation 3, designed to induce severe stress, Japanese mothers showed more secondary control than German mothers (see Table 1). For responsiveness, both of the main effects, culture and type of situation, as well as the interaction, were significant. In all three situations, the Japanese mothers were rated as being more responsive than the German mothers. In addition, only the German mothers showed significantly lower values in responsiveness in situation 3 as compared to situation 1 (see Table 1).

Influence of Mothers' Responsiveness on Control

The two-way ANOVAs (culture $\times$ responsiveness) for situation 2 and situation 3 yielded a culture-independent main effect for the high stressful condition (situation 3) on mothers' control orientation: highly responsive mothers in both cultures showed more secondary control than less responsive mothers.

Influence of Culture and Type of Situation on Children's Control

The two-way ANOVA (culture $\times$ situation) with repeated measures on type of situation showed a significant interaction effect. In situation 2 there

Table 1. Effects of culture and situation on mother-child interaction

	Japan			Germany			F-values		
	Sit. 1	Sit. 2	Sit. 3	Sit. 1	Sit. 2	Sit. 3	Culture	Situation	Culture× Situation
	M SD (N)	M SD (N)	M SD (N)	M SD (N)	M SD (N)	M SD (N)			
Mothers' control ¹	—	2.60 1.57 (20)	3.10 1.29 (20)	—	2.75 1.02 (20)	2.55 1.15 (20)	<1.00	1.00	5.44*
Responsiveness ²	5.11 0.78 (9)	4.85 1.04 (20)	5.10 0.79 (20)	4.18 1.33 (17)	3.65 1.53 (20)	3.15 1.18 (20)	14.66**	3.17*	4.36*
Child's control ³	—	5.20 1.01 (20)	5.42 0.90 (19)	—	5.05 1.39 (20)	4.40 1.39 (20)	3.92	<1.00	3.94*
Eye contact ⁴	2.90 2.33 (10)	2.05 1.70 (20)	2.10 1.83 (20)	4.53 1.50 (17)	2.70 1.84 (20)	2.85 1.60 (20)	4.36*	4.18*	<1.00
Involvement of child ⁵	—	4.90 1.29 (20)	5.60 0.82 (20)	—	4.42 1.12 (19)	4.90 0.91 (20)	5.00*	7.65**	<1.00
Child's emotional state ⁶	—	4.25 0.91 (20)	4.10 1.07 (20)	—	4.75 1.37 (20)	4.10 1.25 (20)	<1.00	5.92*	2.31

¹1=High primary . . . , 6=high secondary control; ²1=low . . . , 6=high responsiveness; ³1=high primary . . . , 6=high secondary control; ⁴1=zero or one . . . , 6=six or more eye contacts; ⁵1=low . . . , 6=high involvement; ⁶1=negative . . . , 6=positive emotional state.

* $p < 0.05$.

** $p < 0.01$.

Note: For situation 1, only 'Mothers' responsiveness' and 'Eye contact' were measured.

were no significant culture differences, while in situation 3 German children showed more primary control than Japanese children. The German children were less likely than the Japanese children to allow themselves to be interrupted and were less likely to accept suggestions from their mothers (see Table 1).

Influence of Mothers' Responsiveness on Children's Control

Two separate two-way ANOVAs (culture×responsiveness) for situation 2 and situation 3 yielded the significance of both main effects (see Table 2). In the high-stress condition, the willingness to cooperate (secondary control) of the Japanese children was higher than the willingness of the German children, and children of the highly responsive mothers cooperated more and showed more secondary control than children of less responsive mothers.

Influence of Mothers' Control on Children's Control

Two separate two-way ANOVAs (culture×mothers' control) for situation 2 and situation 3 yielded no significant effects on children's control (see Table 3).

Influence of Culture and Situation on Specific Mother Variables

The category 'No interest' did not apply to any mother. There were no differences between German and Japanese mothers regarding their behaviour strategies in situation 2 (see Table 4). In situation 3, a culture-specific pattern appeared: Japanese mothers implemented the strategy 'Encouraging intervention' most frequently while German mothers used the strategy 'Demanding intervention'. On the other hand, the second most frequent behaviour of German mothers was

Table 2. Effects of culture and mothers' responsiveness (MR)¹ on mother-child interaction

		Japan		Germany		F-values		
		MR low	MR high	MR low	MR high	Responsive- ness	Culture	Responsiveness × Culture
		M SD (N)	M SD (N)	M SD (N)	M SD (N)			
Mother's control ²	Situation 2	2.60 1.64 (15)	2.60 1.52 (5)	2.25 1.28 (8)	3.08 0.67 (12)	1.07	<1.00	<1.00
	Situation 3	3.00 1.11 (14)	3.33 1.75 (6)	2.08 0.76 (13)	3.43 1.27 (7)	4.89*	2.27	1.70
Child's control ³	Situation 2	5.07 1.03 (15)	5.60 0.89 (5)	4.25 1.83 (8)	5.58 0.67 (12)	6.38*	<1.00	1.04
	Situation 3	5.36 1.01 (14)	5.60 0.55 (6)	3.85 1.34 (13)	5.43 0.79 (7)	6.99*	8.93**	3.21
Eye contact ⁴	Situation 1	2.33 2.16 (6)	4.67 2.31 (3)	4.00 1.41 (6)	4.82 1.54 (11)	3.40	3.85	<1.00
	Situation 2	1.87 1.60 (15)	2.60 2.07 (5)	2.25 1.04 (8)	3.00 2.22 (12)	1.48	1.33	<1.00
	Situation 3	2.43 2.06 (14)	1.33 0.82 (6)	2.15 0.99 (13)	4.14 1.77 (7)	<1.00	2.27	8.37**
Involvement of child ⁵	Situation 2	4.93 1.22 (15)	4.80 1.64 (5)	4.00 1.41 (7)	4.67 0.89 (12)	<1.00	1.49	<1.00
	Situation 3	5.43 0.94 (14)	6.00 0.00 (6)	5.08 0.95 (13)	4.57 0.79 (7)	<1.00	6.77*	3.50
Child's emotional state ⁶	Situation 2	4.07 0.88 (15)	4.80 0.84 (5)	3.75 1.28 (8)	5.42 1.00 (12)	13.46**	2.49	1.83
	Situation 3	3.93 1.14 (14)	4.50 0.84 (6)	3.54 0.88 (13)	5.14 1.21 (7)	10.05**	<1.00	2.18

¹Scale value for Japan: 1, 2, 3, 4 or 5=low, 6=high; for Germany: 1, 2 or 3=low, 4, 5 or 6=high. ²See Table 1, footnote 1.

³⁻⁶See Table 1, footnotes 3-6, respectively.

* $p < 0.05$.

** $p < 0.01$.

and for Japanese mothers 'Interest' (see Table 4). Culture-specific relations between the active behaviour strategies of mothers (demanding and encouraging intervention) and their responsiveness in respect of their control behaviour, were separately analysed by *t*-tests. The results showed a culture-specific pattern only for responsiveness in both situations: the German mothers who primarily

behaved in an active manner were not very responsive ($M=3.65$, $SD=1.53$ for situation 2 and $M=2.87$, $SD=1.13$ for situation 3), while the Japanese mothers who primarily behaved in an active manner were highly responsive ($M=4.76$, $SD=1.09$ for situation 2 and $M=5.07$, $SD=0.80$ for situation 3) ($t(35)=2.51$, $p < 0.05$ for situation 2, and $t(29)=6.17$, $p < 0.01$ for situation 3).

Table 3. Effects of culture and mothers' control (MC)¹ on mother-child interaction

		Japan		Germany		F-values		
		MC primary	MC secondary	MC primary	MC secondary			
		M SD (N)	M SD (N)	M SD (N)	M SD (N)	Mothers' control	Culture	Mothers' control × Culture
Child's control ²	Situation 2	5.23 1.01 (13)	5.14 1.07 (7)	4.62 2.00 (8)	5.33 0.78 (12)	<1.00	<1.00	<1.00
	Situation 3	5.38 1.06 (8)	5.45 0.82 (11)	4.27 1.49 (11)	4.56 1.33 (9)	<1.00	6.97*	<1.00
Eye contact ³	Situation 2	2.23 2.05 (13)	1.71 0.76 (7)	2.50 1.20 (8)	2.83 2.21 (12)	<1.00	1.30	<1.00
	Situation 3	2.63 2.20 (8)	1.75 1.54 (12)	2.55 1.51 (11)	3.22 1.72 (9)	<1.00	1.90	1.99
Involve- ment of child ⁴	Situation 2	4.62 1.45 (13)	5.43 0.79 (7)	3.86 1.35 (7)	4.75 0.87 (12)	4.76*	1.63	<1.00
	Situation 3	5.25 1.16 (8)	5.83 0.39 (12)	4.91 1.04 (11)	4.89 0.78 (9)	1.00	6.54*	1.19
Child's emotional state ⁵	Situation 2	4.00 0.82 (13)	4.71 0.95 (7)	4.13 1.64 (8)	5.17 1.03 (12)	5.96*	2.05	<1.00
	Situation 3	3.75 1.16 (8)	4.33 0.98 (12)	3.73 1.27 (11)	4.56 1.13 (9)	3.77	<1.00	<1.00

¹Scale value 1 or 2=primary, 3, 4, 5 or 6=secondary control. This dichotomization applies to the whole sample (Japan and Germany) as well as to each individual culture.

* $p < 0.05$.

** $p < 0.01$.

Influence of Culture and Type of Situation on Eye Contact

The frequency of eye contact was influenced by culture and situation. In general, the eye contact in Japanese mother-child dyads was lower than for Germans. In situation 1, the eye contact was significantly higher than in the other two situations for both cultures (see Table 1). Furthermore, eye contact was influenced by responsiveness in situation 1 (see Table 2): the frequency of eye contact was higher for more responsive mothers than for less responsive mothers. Finally, in situation 3 an interaction effect between culture and responsiveness occurred: the frequency of eye contact was higher for more responsive German mothers and lower for more responsive Japanese mothers.

Influence of Culture and Type of Situation on Child Variables

The involvement in the task showed a cultural as well as a situational effect. The Japanese children were more involved in the task than German children, and the involvement increased significantly from situation 2 to situation 3 for both cultures (see Table 1). An investigation of the influence of responsiveness (see Table 2) and control (see Table 3) resulted in the following very interesting findings. For mothers who exercised more secondary control in situation 2, the involvement of the child was greater for both cultures, while in the high-stress condition the Japanese children showed more involvement independent of the mother's control behaviour. Also, an interaction effect between

Table 4. Effects of culture and situation on mothers' behaviour

	Situation 2		Situation 3	
	Japan	Germany	Japan	Germany
Most frequent behaviour of mother				
Demanding intervention	0	1	2	10
Encouraging intervention	17	19	13	5
Interest	3	0	5	4
	Chi ² =4.11		Chi ² =10.00*	
Second most frequent behaviour of mother				
Demanding intervention	9	8	4	4
Encouraging intervention	3	1	7	14
Interest	8	10	9	2
	Chi ² =1.26		Chi ² =6.79*	

* $p < 0.05$.** $p < 0.01$.

responsiveness and culture occurred in situation 3 (see Table 2). The child's involvement in the task was greater for very responsive Japanese mothers and less for very responsive German mothers. For the emotional state, children of both cultures showed a decrease in their positive mood from situation 2 to 3 (see Table 1). The control behaviour and responsiveness of the mothers also influenced the emotional state of the child. When the mothers exercised more secondary control in situation 2, the children's positive emotions were greater for both cultures (see Table 3). Children of more responsive mothers showed more positive emotions in situation 2 as well as in situation 3 in comparison with children of less responsive mothers (see Table 2).

DISCUSSION

The results of this study clearly demonstrate universal and culture-specific relations between mothers' control and children's behaviour. Cultural differences between Japanese and German mothers with respect to control orientation, responsiveness and patterns of interaction with their children were most pronounced in the situation that induced stress through strong demands on, and frustration for the child (creating a picture under time pressure and losing it). This situation evokes cultural differences on several levels of behaviour. Here, Japanese as compared to German mothers show

more secondary control and responsiveness towards their children; also Japanese mothers are more encouraging than German mothers. Furthermore, Japanese as compared to German children show more secondary control in this situation.

However, we have to note some limitations of this study. First, the study only includes girls, and we can only speculate about boys. This is a disadvantage since in Japan boys and girls are still treated quite differently. Also, the situations become increasingly stressful from the first to the third task. The fact that the most stressful situation has always been presented last may have a minor confounding effect which is not controlled here.

In general, these results are in line with the present literature on mother-child interaction in Japan as a group-oriented culture compared to individualistic cultures (Hendry, 1986; Lebra, 1976; Kornadt and Trommsdorff, 1990; Trommsdorff, 1989b, 1993a). The data illustrate the strength of mother-child bonding in Japan, reflected by more secondary control and responsiveness on the part of the mother and more secondary control (e.g. cooperation) on the part of the child. Japanese mothers' unconditional acceptance of their children's behaviour becomes apparent when the children's security needs are challenged by increased induction of helplessness in the children.

In the stressful situation with high demands on the child, Japanese as compared to German mothers clearly shift towards more secondary control, thus giving priority to the needs and wishes of their children. Mothers of both cultures presumably want their children to be successful in the given task; however, success does not necessarily mean the same thing for Japanese as for German mothers. The highly demanding task has the potential to induce the perception of a loss of control. This causes an imbalance between self and environment and requires the individual to regain control. For Japanese mothers and children, secondary control is the most suitable strategy here; this prevents the children from experiencing further stress induced by the task's demands. The mothers' secondary control behaviour helps the children to reduce inner tensions and to regain control by accommodating to the mothers' behaviour. Japanese mothers, who otherwise are concerned with their children's successful performance on tasks, seem to consider such task orientation as irrelevant in a situation in which their children experience stress. They prefer to establish psychological balance and control in their children. In contrast, German mothers are less child-oriented and more task-oriented in that they

try to help their children to succeed even though the task is unsolvable. They show more increase (instead of a decrease) in primary control. This is reflected in their more demanding behaviour and more direct attempts at influence.

Results on the different degrees of responsiveness of Japanese and German mothers underline the above interpretation. While German mothers (who, in general, are less responsive than Japanese mothers) significantly decrease their responsiveness during the stressful situation, Japanese mothers' responsiveness remains stable for all three situations. Accordingly, not only does the German child experience loss of control in the stressful situation on account of the unsolvable task, but this stress is intensified by the experience of the mother's reduced responsiveness. The Japanese child, on the other hand, experiences her mother's responsiveness as remaining stable irrespective of situational demands. This may increase or at least maintain emotional security based on the mother's emotional stability, thus serving as a secure basis for experiencing control. While German mothers focus more on the situational demands and the task, Japanese mothers focus more on the needs of their children. These results are in line with Bornstein *et al.* (1992), who demonstrated more object and less person orientation of American as compared to Japanese mothers in interaction with their infants.

Japanese mothers' child-centredness and their higher responsiveness to the children's needs presumably compensate for the children's stress induced by the situation. It may be questioned whether an accommodating behaviour (as secondary control) stems from the ability to understand the wishes and needs of the social environment correctly and the motivation to adjust one's own goals and actions accordingly; here responsiveness may function as an important link. In the high-stress situation, high responsiveness was related to secondary control in both cultures. This is in line with the findings of Trommsdorff and John (1992), who demonstrated a relation between accuracy of decoding emotions, responsiveness (measured as empathic concern) and secondary control.

How do *children* react in this stressful situation? Children in the two cultures cope with this stressful situation by implementing different control strategies. This is especially interesting since both the Japanese and the German children become increasingly involved in the task, particularly children with mothers high in secondary control. Japanese as compared to German children show

more secondary control and are more willing to cooperate in this stressful situation. Also, the Japanese children are somewhat more cooperative than the German children in the mild stress situation (situation 2). This difference increases for the third, the most stressful situation.

In both cultures, the children's behaviour is similar to their mothers' behaviour. Cultural differences in the way stressful situations are dealt with are reflected in respective patterns of control and responsiveness in mother-child interaction: a more accommodating interaction is obvious for Japanese mother-child dyads and a more assimilative interaction for German dyads. This finding is in line with the study by Weisz *et al.* (1984) suggesting more secondary control behaviour for group-oriented cultures in comparison with individualistic cultures.

On the one hand, our study has found *universal* relations between mothers' responsiveness and children's control: further, in both cultures, if mothers are responsive, the children show high secondary control (in the highly stressful situation 3) and a rather positive emotional state (in the medium and highly stressful situations 2 and 3). On the other hand, our study shows that it is necessary to test control behaviour and its specific relations to mother-child interactions by taking into account *culture-specific* conditions. For example, certain non-verbal behaviour, such as eye contact, has a different cultural meaning in Japan and Germany: eye contact means an intrusion into privacy in Japan. Eye contact presumably also has a different function for the mother-child relationship in different cultures. While the more responsive German mothers have more eye contact with their children in the stressful situation, Japanese mothers decrease their eye contact, thus reducing any further stress for the children. Another culture-specific result is that only for Japan, the mothers' secondary control is related to the children's involvement in the task: Japanese mothers are higher in secondary control, especially in the stressful situation. They give comfort to the children by involving the children in the task. Thereby mothers reduce children's negative emotions.

These results demonstrate that 'objectively' equal behavioural variables can mean different theoretical concepts. In cross-cultural research, more studies are needed to detect culture-specific phenomena and to develop functionally equivalent measures (Trommsdorff, 1989a). This allows us to develop a better understanding of certain concepts and to avoid biased generalizations. For example, as

demonstrated by our data, in an individualistic culture like Germany, intimate relations are expressed more openly (e.g. by engaging in more eye contact), while the opposite is true in a group-oriented culture which relies heavily on subtle communication for the mutual understanding of each other's feelings and needs. This is in line with other studies (Lebra, 1976; Trommsdorff, 1991, 1993b, in preparation).

First of all, the present study underlines the necessity of studying control, its preconditions and functions, in a cross-cultural framework, thereby overcoming ethnocentric perspectives. This study also demonstrates how to improve measurement of control behaviour. Up to now, mainly questionnaires have been used (Brotman-Band and Weisz, 1988; Essau, 1992; Seginer *et al.*, 1993; Trommsdorff, 1989b). However, behavioural methods must be used in order to increase the conceptual validity. The present study shows that the observation of behaviour in quasi-natural situations allows us to gain more information on the function of control behaviour and related theoretical concepts. The comparison of three situations in our experimental study has demonstrated that control behaviour is activated in stressful situations. This is in line with the suggestion of Lazarus and Folkman (1984), Weisz *et al.* (1984) and Weisz (1990). In stressful situations, individual and cultural differences in mother's control behaviour and responsiveness can be observed which allow the child to adapt to this situation according to the respective cultural mode of control. Furthermore, the present study gives us some insight into the development of control. More studies are needed that examine the measurement of control and responsiveness, the conditions for the development of control, and the functions of control and responsiveness for intra- and interpersonal processes.

Most of all, mother-child interactions should be studied from a truly interactive perspective. So far, our data demonstrate certain culture-specific relations as well as culture-independent relations. It remains unclear to what extent the mothers' reactions to their children influence the children's behaviour, or whether the children's reactions influence the mothers' behaviour, or whether both react to the specific situation on the basis of certain mutual understandings and their relationships. For example, the fact that Japanese children receive more responsiveness from their mothers than do German children may be a result of and at the same time contribute to the close emotional bonding in the Japanese mother-child relationship.

Therefore it is necessary to carry out more detailed interactional analyses in specific situations over time. This may be a basis on which to proceed in order to answer questions on the possible mutual influences between mother and child, as have been discussed by Bornstein (1989).

The interaction between mothers and their children obviously follows a different route in the two cultures. When Japanese mothers orient their behaviour to their children by implicit understanding of the children's needs, the children focus on the task with higher involvement; in Germany, mothers have to influence their children by direct intervention and to motivate them to engage in the task. The same kind of children's behaviour—involvement in the task—is induced by very different maternal behaviour, and possibly socialization styles, in Japan and Germany. Japanese mothers who are high in secondary control and responsiveness induce more cooperation and involvement on the part of the children while the reverse is true for German mother-child interactions. Clearly, child orientation induces the Japanese child to behave in a mother-oriented way. In Germany, mother and child function as mainly separate entities.

The question arises whether such culture-specific patterns of mother-child interaction are the basis for the socialization of culture-specific values, such as the development of social-oriented motivation and secondary control in Japanese children and the development of individualistic motivation and primary control in German children, and how processes of socialization function in everyday situations.

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