

## Are the Key Assumptions of the 'Strange Situation' Procedure Universal? A View from Japanese Research

Keiko Takahashi

University of the Sacred Heart, Tokyo, Japan

**Key Words.** Attachment · Child-rearing patterns · Cross-cultural research · Cross-cultural validity · Culture-specific aspects · Japanese culture · 'Strange Situation' procedure

**Abstract.** Based on a Japanese longitudinal study, three assumptions underlying use of the 'Strange Situation' procedure are examined with respect to their universal validity. Sixty 12-month-old infants were assessed by means of the original procedure and their development followed until their 42nd month. Contrary to the key assumptions, (a) the stress aroused by the procedure went well beyond the moderate level for the Japanese infants, and some were pushed from type B to type C behavior by the procedure; (b) infants did not clearly exhibit avoidant behaviors toward the mother at the reunion with her, resulting in no type A babies; and (c) the insecurely attached type C infants overcome their 'disadvantage' by the 32nd month at the latest. These 'dissonant' findings are interpreted in terms of Japanese customs of child-rearing and interpersonal interactions.

The purpose of this paper is to examine the universality of a few of the key assumptions underlying use of the 'Strange Situation' procedure, based on a Japanese longitudinal study. Though cross-cultural applications of the original procedure have focused on differences in distributions of A, B, and C types of attachment, this paper is concerned primarily with the question of the appropriateness of the procedure for Japanese subjects. Though the distributions of types vary with kinds of subjects even within cultures, as reviewed by Van IJzendoorn and Kroo-

nenberg [1988], the distributional difference itself offers no problem. Rather than casting doubt on the universality of the 'Strange Situation' procedure, the difference might reflect the validity of the procedure as a measurement tool, provided there is the understanding that the procedure works in essentially the same way in each culture. Thus, an important issue in comparison of different groups is whether the key assumptions on which the 'Strange Situation' procedure has been constructed are valid for other cultures or subcultures than the 'original' one to

which it was applied, that is, American middle-class Caucasian home-reared infants and their mothers.

Some of the implicit assumptions on which the 'Strange Situation' procedure and its associated theory are based are revealed when the procedure is applied to Japan's very different, non-Western yet highly modernized culture. Examination of these assumptions, it is expected, will advance our understanding of the procedure.

### **Key Assumptions Underlying the 'Strange Situation' Procedure**

In addition to the basic rationale, that is, that the quality of an infant's attachment toward the mother is represented mainly by the mother's effectiveness as a secure base for coping with stress, the 'Strange Situation' procedure is based on at least the following three assumptions: (1) The secure-base function of attachment will work effectively when the infant is under 'mild' stress, induced by an unfamiliar laboratory situation, a female adult stranger and being left alone. (2) The quality of attachment will be identified by behaviors at the reunion with the mother rather than by those during separation. Specifically, whereas the securely attached (type B) infants are easily soothed by the mother's return even if the procedure has aroused some distress, the two groups of insecurely attached infants are characterized by insufficient or maladaptive behaviors at the reunion: Type A infants avoid contact with the mother after the separation, and type C infants express behaviors resistant to her. (3) Securely attached, type B infants will have an advantage in their future develop-

ment over their insecurely attached types A and C counterparts.

To anticipate the conclusion of this paper, the Japanese data described here seriously question the universality of these assumptions.

### **Behavior of Japanese Infant-Mother Pairs in the 'Strange Situation'**

The original, unmodified 'Strange Situation' procedure was administered to 60 12-month-old (range 11;17-13;11) first-born Japanese infants (31 boys and 29 girls) and their mothers, who were participating in a large longitudinal study. Our subjects were from typical intact urban middle-class families. All the mothers were full-time and primary caregivers in nuclear families. Most of the mothers were high-school graduates, and most of the fathers were university graduates and white-collar workers.

The results were analyzed following, and compared with, those of Ainsworth et al. [1978]. Several other authors – Tajima [1987], Kanaya [1986], and Nakano et al. [1986] – have undertaken analyses of these data based on a somewhat different distribution of attachment classifications. In less than 8% of cases, however, did real differences in classification exist, which is within the normal range of interrater disagreements.

Additional studies were carried out to help us clarify the nature of the 'Strange Situation' procedure as experienced by the Japanese subjects. The main findings were as follows:

(1) Infants were classified into the conventional types A, B, and C, according to the original criteria. There were no significant

**Table 1.** Behaviors of Japanese mothers and infants in the 'Strange Situation'

	Behavior	US %	Japan %	Difference
First reunion	Infants cried when mother returned	42	37	NS
	Infants stopped crying within 15 s	majority	45	NS
	Infants were held by mother	34	52	NS
	Infants showed some initial avoidance	30	32	NS
	Mother went to her chair directly	41	41	NS
	Infants were held for over 120 s	7	20	NS
Infant alone	Infants cried at some times in episode	78	96	**
	The episode was curtailed	53	90	**
	The episode was skipped	0	10	*
	Infants cried immediately when mother left the room	45	93	**
	Infants were undisturbed by mother's being out	4	0	NS
	Infants were crying at the end of episode	58	91	**
	Infants engaged in exploration	62	9	**
Second reunion	Infants achieved contacts with mother within 15 s	78	100	**
	Infants showed some avoidance	47	17	**
	Infants were crying at the beginning of the episode	53	79	**
	Infants stopped crying when held	majority	58	NS
	Infants were held by mother	89	100	**
	Infants were not soothed by holding	9	33	**
	Infants were in contact over 120 s	24	51	**
	Infants manipulated toys	82	44	**

Numbers of subjects: US = 106; Japan = 60. \* $p < 0.05$ ; \*\* $p < 0.01$ .

differences between American and Japanese samples in distributions of securely attached (type B) infants (68%) and insecurely attached types A and C infants (32%). However, the Japanese insecure group consisted of only type C infants; there were no type A infants [Takahashi and Miyake, 1986; Takahashi, 1986a].

(2) Japanese subjects were compared to American ones with respect to 21 salient behaviors of mothers and infants during the first reunion episode, the infant-alone period and the second reunion, all behaviors cited by Ainsworth et al. [1978]. As shown in table 1, there occurred 13 significant differ-

ences (0.05 level) between the 2 samples. Though there were no significant differences in any behavior prior to the mother's departure, 12 of the 13 differences were significant in behaviors occurring while the infant was alone and following reunion with the mother. Clearly, the Japanese infants were extremely disturbed, much more so than their American counterparts, at being left alone, and the upset carried over to the end of the procedure. Ninety-six percent of our infants cried; 79% of the infants continued to cry at the reunion with the mother. For 90% of the subjects the 'infant alone' period was curtailed because of the severity of the distress.

Only 44% of subjects exhibited exploratory behaviors in the reunion episode, and only 17% showed avoidant behaviors toward the mother.

(3) Since the data suggested that the stress aroused in the infant-alone period was beyond the moderate level, further analyses were carried out. Video records of behaviors through the first reunion only were classified into the conventional attachment types. These analyses clearly indicated that the Japanese infants shifted from type B to type C behavior after the infant-alone period. Prior to this, when there was less stress, 83% of the infants were identified as type B. When the videotapes of the remainder of the procedure were analyzed, the number of infants classified into type C doubled. Thus, we assume that at least some infants, type B in reality, felt so fearful on being left alone in the procedure that they behaved like type C babies from then on [Takahashi, 1986a].

(4) The Japanese mean scores on each of 5 ratings of interactive behaviors toward the mother were very similar to those of the original American subjects. However, the Japanese infants tended to be rated higher on the proximity-seeking/contact-maintaining and resistance scales, and lower on the avoidance scales. Above all, it was conspicuous that only 3 of the 60 Japanese infants scored over 4 points on the 7-point avoidance scale, while American type A infants achieved means of 5.92 (type A<sub>1</sub>) and 4.70 (type A<sub>2</sub>) [Takahashi, 1986a].

(5) To examine whether 'mild' stress yielded the same results as for American infants, first, at the 16th month, about half of the infants and their mothers were assessed as to attachment pattern in a less stressful situation at home. The video records of these home separations were classi-

fied into the A, B, or C types as originally defined. As predicted, the home separations caused milder stress than the original procedure, but there were no A types. Eighty-four percent of the infants were identified as type B and 16% as type C. Five infants shifted from C to B, and 1 infant moved from B to C. The degree of avoidance increased, but its extent was still far less than among the American subjects [Takahashi and Miyake, 1986].

(6) Second, subjects were presented the 'Strange Situation' again at their 23rd month. Though the procedure has seldom been applied to children older than 18 months in the US, considering the daily life experiences of Japanese infants, it was expected that the stress caused Japanese 23-month-olds in the infant-alone period would be comparable to that experienced by American 12-month-olds. The expectation was borne out. With being left alone now not so stressful, the number of type B subjects increased and the number of type C subjects decreased; 81% were classified as type B, and only 19% as type C. Fourteen subjects shifted from type C to type B, whereas 5 moved from type B to type C. There were again no type A subjects; most of the subjects showed no clear avoidance toward the mother [Takahashi, 1985].

(7) Our longitudinal data indicated that, in experimental situations, consistent with American data, type B infants behaved more adaptively than type C infants, at least up to the second birthday. At the 16th and 23rd months, type B babies were more compliant to the mother [Tajima, 1987], and at the 23rd month, they were more curious toward unfamiliar objects [Nakano et al., 1986], more socially competent, and had more effective relationships with an unfamiliar peer

[Kanaya, 1986] than type C babies. However, this advantage in adaptiveness of type B infants disappeared after the 32nd month. There was no superiority of type B over type C infants in PPVT scores [Takahashi, 1986b], in compliance with the mother (at the 32nd month) [Tajima, 1987], in social relationships in everyday situations (at the 36th month) [Takahashi, 1986b], or in peer interactions (at the 42nd month) [Kanaya, 1986]. Thus, the results indicated that, among Japanese subjects, attachment type can only predict children's behavior in the experimental situations when they are under 2 years of age.

To summarize, first, many of the Japanese infants were extremely disturbed by the stress aroused by the procedure, especially by the infant-alone episode. Second, the insecurely attached infants responded to the mother's return from what they likely saw as her capricious leaving by resisting rather than avoiding, and no infants were identified as type A. Third, the insecurely attached type C infants were able to overcome their developmental disadvantage by their 32nd month.

#### **Why Were Japanese Subjects Excessively Disturbed by Being Left Alone?**

The idea is well taken of mild stress as the key to assessing how secure the base of attachment is. It is plausible that in a highly stressful situation, infants will attach to persons to whom they would not ordinarily want to direct attachment behaviors, and that, in contrast, under weak stress or in a nonstressful situation they will have no need to exhibit any attachment behaviors. Thus, it is assumed that only when the 'Strange Situ-

ation' procedure arouses moderate stress can the procedure assess the quality of attachment.

However, contrary to assumption 1, for Japanese subjects the stress caused by being left alone was beyond the mild level. Their vulnerability to stress can be attributed possibly to characteristics of Japanese culture. Contrary to American culture, in which learning to cope with stress is seen as part of healthy development, Japanese methods of child-rearing strive to remove any kind of stress [Befu, 1971; Caudill and Weinstein, 1969; Lebra, 1976]. For protecting infants and very young children from stress, the Japanese have long favored child-rearing methods in which a caregiver is always near the infant, such as co-sleeping, co-bathing, and carrying the child on the mother's back. Even today some authors of child-rearing books for parents recommend those traditional methods [Matsuda, 1987].

In fact, some empirical studies indicate that families with young children continue to use them. For example, Japanese children usually do not sleep in a separate bedroom from their parents. Young mothers reported no hesitation in taking the baby into their bed when the infant cried or asked to be fed. In one local area of Japan, only 10 of over 300 kindergarten children slept alone in a separate room [Mii, 1988]. Even in urban middle-class families, 62% of 1- to 2-year-olds sleep in the same room with one or both parents [Takahashi, 1986c]. The customs of carrying a baby on the back and co-bathing also continue to be prevalent. All of these traditional methods were likely used among subjects in the present study. According to interviews with mothers, during the preceding month the infant had been left without the mother (i.e., with father or grandmother)

a mean of 2.2 times, and almost never had been left alone.

Thus, Japanese culture treats 'being left alone' in striking contrast to American culture. In Japanese culture, it is therefore plausible that the extent of the strangeness of the 'Strange Situation', and the accompanying stress, go way beyond the bounds of 'mild'. Some infants, identified as type C babies by the procedure, even if 'securely' attached to the mother, were too disturbed to be pleased at the reunion with her. Instead, they reproached her by refusing any of her efforts to soothe them.

The Japanese data thus suggest that it is critical that an appropriate level of stress is aroused by the procedure among subjects of different cultures or subcultures. The data indicate that cultural and/or individual susceptibilities to the stress induced by the procedure may influence the outcome of the assessment.

#### **Why Did Japanese Subjects Exhibit Little Avoidance?**

Contrary to assumption 2, the interactive behaviors of Japanese mother-infant pairs were characterized by low manifestation of avoidant behaviors, which were criterial behaviors in classifying infants into type A in the original procedure. The low intensity of avoidance can be attributed to two features of Japanese culture, having to do with interpersonal interactions.

First, it is simply contrary to Japanese culture to exhibit avoidant behaviors in interpersonal interactions. Japanese students involved in our research expressed their surprise when they viewed the video records of avoidant-type American infants. The Japa-

nese emphasis on the development of harmonious modes of interpersonal interaction, reinforced by a highly homogeneous society, inhibits avoidant behaviors toward others, as impolite modes of interaction. People are expected to be very sensitive to others and to direct their effort to maintain the harmony of personal relationships [Weisz et al., 1984]. Achieving this harmony is one of the main objectives of development. Children are carefully socialized not to direct avoidant behaviors toward others, because avoidance can mean the break of previous connections. Though 12-month-olds would be too young to have become fully socialized in this respect, they already would have had some experiences of being discouraged from showing avoidant behaviors.

Second, Japanese people predominantly use proximal modes of interaction with infants and/or young children. In fact, Japanese infants were rated higher on the proximity/contact-seeking scales than their American counterparts. In addition, at the reunion following the separation in the 'Strange Situation' procedure, most mothers rushed to pick up their infants before their infants exhibited any cue that they wanted to be picked up. This behavior on the mother's part was so common as to suggest that the mothers could not have had any idea of their child's being capable of avoiding them. It is plausible to assert that infants simply cannot avoid the mother in the Japanese style of mother-infant interactions. It is likely that Japanese insecurely attached infants resist rather than avoid their mothers, because by resistant behavior infants can express their negative emotion while maintaining the established relationship.

Thus, the Japanese data suggest, contrary to assumption 2, that the diagnostic value of

the avoidant behavior exhibited in the original procedure must vary, depending on its role and occurrence rate in daily life. In light of Japanese customs, avoidant behaviors, even when they are subtle, may be critical and thus should be given important diagnostic value, because avoidance goes against the grain of the culture. By modifying the criteria behaviors, we can identify at least some type A subjects among Japanese infants.

### **Why Is Predictability of the Attachment Types Limited among the Japanese?**

The longitudinal data did not fully support assumption 3 with respect to the adaptiveness of type B infants. Regarding these findings, three interpretations are offered.

First, as the American insecurely attached types were mostly of type A, previous evidence of superiority of securely attached infants depended mainly upon comparisons between type B and type A infants [Sroufe, 1979]. Therefore, strictly speaking, we have not had enough data regarding long-term adaptations of type C infants. From the Japanese data, we can assume that the nature of attachment of type C babies, who attach, though insufficiently, to the mother and insist on being near and having contact with her, is such that these infants are not so much handicapped in socialization as type A infants, who avoid the mother.

Second, in view of the distress of Japanese infants in the 'Strange Situation' procedure, it may have been ability to cope with the stress, rather than attachment itself, that the procedure measured among Japanese infants. The Japanese data, contrary to assumption 3, indicate that attachment type predicts adaptation in experimental situa-

tions only among very young children. This result is readily interpretable if we assume that among young children good performance in experimental tasks requires ability to cope with the stress of the experimental situation.

Finally, though the rationale that the secure-base function of attachment supports healthy development may be correct, it may be that the mother's effectiveness in serving a secure-base function well represents the quality of attachment only in the American culture, in which social independence or self-reliance is emphasized in the child's development, and children, even infants, are trained or encouraged to learn to cope with the solitude of being alone [Befu, 1971]. In such a culture, the A, B, and C attachment types are likely to predict future adaptation much better than they do in Japanese culture.

### **Conclusion**

In conclusion, the Japanese data indicate that the key assumptions of the 'Strange Situation' procedure are based on the child-rearing customs of American middle-class Caucasian families. Japanese studies suggest that the basic assumptions should apply flexibly to other cultures. An objectively identical procedure does not necessarily guarantee applicability to different cultures.

### **Acknowledgement**

This research was a part of a project directed by Professor Kazuo Miyake and supported by grants from the Toyota Foundation, the Japan Society for the Promotion of Science, the Ministry of Education, and the Japanese Institute of Child Study. I am grate-

ful to Giyoo Hatano for his insightful comments on this article. I thank Nobumoto Tajima, Etuko Minamide, Aoi Noda, Kimiharu Satoh, Tatuo Ujiie, Shing-jen Chen, and Shigeru Nakano for assistance in data collection, and Mie Nagano for assistance in data analyses.

## References

- Ainsworth, M.D., Blehar, M.C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the Strange Situation*. Hillsdale NJ: Erlbaum.
- Befu, H. (1971). *Japan: An anthropological introduction*. New York: Harper & Row.
- Caudill, W., & Weinstein, S. (1969). Maternal care and infant behavior in Japan and America. *Psychiatry*, 32, 12-43.
- Kanaya, U. (1986). Relationships with attachment types and play behaviors with an unfamiliar peer at the 23rd and 42nd month. In K. Miyake (Ed.), *Socio-emotional development in the first three years*. (Hokkaido University Report, pp. 75-86). Hokkaido University, Sapporo. (In Japanese).
- Lebra, T.S. (1976). *Japanese patterns of behavior*. Honolulu: University of Hawaii Press.
- Matsuda, M. (1987). *Encyclopedia of child rearing. Revised edition*. Tokyo: Iwanami. (In Japanese).
- Mii, N. (1988). Sleeping arrangements among kindergarten children. Unpublished thesis, University of the Sacred Heart, Tokyo. (In Japanese).
- Nakano, S., Usui, H., & Miyake, K. (1986). Individual differences in responses to unfamiliar objects at twenty-three months of age. (Hokkaido University Research & Clinical Center for Child Development, Annual Report, 1984-1985, pp. 43-55). Hokkaido University, Sapporo. (In Japanese).
- Sengoku, T. (1984). *When do they become 'Japanese'?: Child Rearing and Culture in Comparative Study between Japan and the US*. Tokyo: Shogakukan. (In Japanese).
- Sroufe, L.A. (1979). The coherence of individual development. *American Psychologist*, 34, 834-841.
- Tajima, N. (1987). Does the quality of attachment predict later successful adaptation? (Hokkaido University Research and Clinical Center for Child Development, Annual Report, 1985-1986, pp. 29-35). Hokkaido University, Sapporo. (In Japanese).
- Takahashi, K., & Miyake, K. (1984). Culture-boundedness of the A-, B- or C-classification by the strange-situation procedure: A case of Japanese infants and mothers. Paper presented at the International Conference on Infant Studies, New York.
- Takahashi, K. (1985). Behavior changes in the strange-situation procedure among Japanese children between the 12th and 23rd months. Paper presented at the biennial meeting of the Society for Research in Child Development, Toronto.
- Takahashi, K. (1986a). Examining the strange-situation procedure with Japanese mothers and 12-month infants. *Developmental Psychology*, 22, 265-270.
- Takahashi, K. (1986b). How to assess attachment toward the mother. In K. Miyake (Ed.), *Socio-emotional development in the first three years* (Hokkaido University Research and Clinical Center for Child Development, Annual Report, 1984-1985, pp. 11-34). Hokkaido University, Sapporo. (In Japanese).
- Takahashi, K. (1986c). Sleeping arrangements. Unpublished manuscript.
- Takahashi, K., & Miyake, K. (1986). Patterns of attachment among Japanese infants in laboratory and at home. Paper presented at the International Conference on Infant Studies, Los Angeles.
- Van IJzendoorn, M.H., & Kroonenberg, P.M. (1988). Cross-cultural patterns of attachment: A meta-analysis of the Strange Situation. *Child Development*, 59, 147-156.
- Weisz, J.R., Rothbaum, F.M., & Blackburn, T.C. (1984). Standing out and standing in: The psychology of control in America and Japan. *American Psychologist*, 39, 955-969.

Keiko Takahashi  
 Department of Psychology  
 University of the Sacred Heart  
 Hiroo 4, Shibuya-ku  
 Tokyo 150 (Japan)