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RECENT RESEARCH FROM THE RCCCD OF HOKKAIDO UNIVERSITY

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The following brief report constitutes a commentary and evaluation of the recent research published or in progress at the Research and Clinical Center for Child Development, Hokkaido University. My familiarity with this research comes from three sources : (1) My role as a consultant at the joint planning meetings sponsored by the Social Science Research Council and the Japan Society for the Promotion of Science which were held prior to the initiation of the recent Hokkaido research project, (2) my stay at the RCCCD as a Visiting Professor working closely with Professor Miyake, and (3) my input on several published papers and convention presentations stemming from this project.

THE BACKGROUND OF THE HOKKAIDO WORK

The overall objective of the work of Professor Kazuo Miyake and his collaborators at the RCCCD is to clarify the course of the development of socialization in early infancy, in particular the factors accounting for the development of individual differences in attachment, compliance, emotional communication, and the socialization of cognition. The long-range goal is to trace the roots of important individual differences in the cognitive styles of Japanese children discovered in the course of the longitudinal study of school age children by Hiroshi Azuma, Robert Hess and their respective collaborators. It is believed that the roots of these individual differences lies in the unique patterns of emotional and social interaction of the Japanese mother and infant. To achieve this objective, Professor Miyake and his coworkers have engaged in two ambitious longitudinal studies of children beginning from approximately two months before birth to about four years of age.

The guiding principle of the longitudinal studies is to trace how biological and constitutional roots of individual differences (e.g., infant temperament) interact with maternal practices to account for individual differences at various later ages, especially attachment at 12 and 21 months, and compliance at 16, 23, and 36 months.

POSITIVE FEATURES OF THE HOKKAIDO STUDIES

There are many noteworthy features to the Hokkaido longitudinal studies. First of all, it is one of the most ambitious studies of the development of socialization yet attempted in the world's literature. Over 60 infants are being followed from birth to

Editor's note : Dr. Joseph J. Campos is Professor of Developmental Psychology, Department of Psychology, University of Denver. As a visiting professor of the Ministry of Education, Science and Culture, he stayed for three months in 1983 at the RCCCD working with Professor Miyake and his collaborators and giving a series of lectures, and seminars.

nearly four years of age, with frequent laboratory and home observational assessments using the most modern of videotape and physiological recording equipment. Secondly, its unique, two-cohort design is exemplary for permitting the investigators at Hokkaido to engage in research in both the context of discovery and the context of confirmation : Cohort 1 permitting the former, and Cohort 2 the latter. Thirdly, it is one of the few investigations to date that attempts to measure constitutional and biological factors influencing the development of the mother-infant relationship through the use of objective rather than maternal or observer rating methods. This strategy has proven effortful but successful in uncovering important influences of biological processes on social development. Fourthly, the research has been designed with the goal of tapping similar processes at different ages with instruments and paradigms that are age appropriate. Fifth, this study is an exemplary illustration of the tendency in contemporary developmental psychology to investigate the transition between infancy and early childhood.

Overall, then, the research is well-designed and remarkably up-to date. Moreover, the Hokkaido work differs in many respects from Japanese research that come across either as replicational, or as addressing issues of interest to American psychologists 10 or 15 years before.

A guiding feature of the work at Hokkaido is its theoretical framework emphasizing the interaction of biological dispositions endogenous to the infant (i.e., infant temperament) with maternal responsiveness in the establishment of individual differences in socioemotional development of the proband children. The emphasis on temperament as a determinant of subsequent socialization is one of the most distinctive aspects of the Hokkaido longitudinal work. Although many researchers have given thought to the importance of measurement of temperament and its impact on the mother-infant relationship, no study to date has so consistently traced the role of temperament in the first four years of life, measured temperament with such a broad array of procedures, and emphasized the objective measurement of temperament with behavioral and physiological procedures. In addition, the study was designed in such a way that it permits cross-national comparisons with American samples, thus broadening the significance of both the Hokkaido work and that of the United States. This intercalation was accomplished by the Hokkaido investigators' periodically taking similar assessments to those made at Harvard University by Professor Jerome Kagan, and at the University of Denver by my research team.

The longitudinal work has already borne considerable fruit. It has provided clear evidence that continuity exists in measurements of temperament between the neonatal period and 12 months of age, and has demonstrated that much of what is called "the security of infant attachment" reflects temperamental dispositions to become distressed already evident in the newborn. In addition, the work has provided important cross-national data calling into question the interpretation of Ainsworth Strange Situation attachment classifications, and proposing that the meaning of those classifications are culture-bound. These two findings — on continuity of temperament and on Japanese infant attachment classifications — are both major contributions which have had significant theoretical and empirical implications in developmental psychology. Moreover, the recent replication by Professor Miyake of his temperament-attachment findings

confirms nicely the implications of his prior work. This longitudinal study is already widely known in the United States through its citation in the recent *Handbook of Child Psychology*, and the circulation of prepublication drafts of the article describing the preliminary findings of the Hokkaido studies, and which is to appear in a forthcoming *Monographs for the Society for Research in Child Development*.

As the testing of Cohort 1 and 2 comes to a close, the Hokkaido work is increasingly moving in the direction of studying the significance of emotional communication for the development of compliance, shame and guilt. To achieve the goal of better designing research on emotional communication, a joint planning meeting between American and Japanese scientists is scheduled for August 1985, again under the sponsorship of the Japan Society for the Promotion of Science, and of the Social Science Research Council. In preparation for this meeting, two preliminary cross-national studies have been designed and are in process of data collection. The studies are characterized by the use of both questionnaire and objective observational data, and both the questionnaire and the testing paradigm were designed with close input from both Japanese and American psychologists to avoid ethnocentrism in research design. The work on emotional communication, like that of the development of attachment, is at the cutting edge of psychological theory today, stressing the study of emotion as a behavior regulator in social settings, rather than merely as an intrapersonal feeling state. As with the work on temperament, the study on emotional communication has an important biological and ethological inspiration.

The two studies in progress involve comparing the differential effectiveness of discrete emotion signals on 11 month old infants in the United States and Japan. Preliminary findings suggest that even at such an early age, Japanese infants appear to be far more sensitive to the mother's expression of anger than are American infants. By contrast, no such heightened sensitivity is being found for the emotion signals of fear and joy. The origins of this heightened sensitivity in both constitutional susceptibility and experiential antecedents can readily be traced.

The second study under way contrasts the maternal-child interaction styles when the infant is asked to comply with a maternal prohibition at 23 and 36 months of age. Again, major differences are being observed in the quality of the mother-child communication, with American mothers being much more prone to the expression of anger, and more verbal than the Japanese mothers. Data are being analyzed to determine whether the expression of anger is associated with oppositional behavior by the children in either or both cultures.

In summary, then, the research being done at Hokkaido is theoretically exciting, up-to-date, well-designed, and influential. The studies employ a breadth of research methods, numerous testing points in the longitudinal course of the investigation, and coordinate well with similar studies in progress in the United States (and in some cases, other countries as well), thus adding a cross-national significance usually lacking in studies of social development. The findings to date are interesting, well disseminated both in Japan and the United States, and read with great interest by American psychologists. Moreover, the studies in progress or being planned promise to be equally important.

THE WEAKNESSES OF THE HOKKAIDO WORK

Many of the problems with the Hokkaido studies stem directly from the ambitiousness of the project. These problems revolve around the lack of personnel to supervise the project with the care and thoroughness that the studies require, the lack of data analytic resources in the RCCCD, and the diffusion of responsibility for the development and interpretation of the findings of the aspects of the project. In addition, I believe there is one conceptual need that must be addressed as the work continues.

More specifically, any project that requires so much testing of so many infants on so many different paradigms necessitates the appointment of experts on the psychological assessment at each of the ages. At the very least, Professor Miyake requires one Ph. D.-level research associate who can supervise the infancy assessments, and another who can supervise the early childhood assessments. These responsibilities are currently handled with great diligence and expertise by very capable associates. However, these associates have principal responsibilities in other areas, such as teaching in other universities. These other responsibilities make it difficult to bring the project speedily to the data analytic phase.

A second problem encountered by this work is the lack of a psychometric specialist, who can readily prepare the voluminous data obtained in this project first for computer analysis, and subsequently for up-to-date multivariate assessments such as structural equations modeling or path analyses. The lack of such statistical expertise can seriously compromise the ultimate contribution of this project to our understanding of the development of socialization by impeding the detection of significant relationships present in the data but not extractable by simpler statistical analyses. It can also compromise the reception of the findings from this project by producing lack of acceptance of the validity of the findings from investigators interested in having data presented in the most up-to-date statistical format.

A third problem is the lack of graduate student involvement in the research project. Usually, graduate students working toward the master's and doctoral degrees take on part of a project as work toward a degree. Professor Miyake has a small group of very intelligent and dedicated graduate students. However, they are too few in number and some are not sufficiently interested in the non-cognitive aspects of the developmental research to address significant segments of the ambitious research project that Professor Miyake has undertaken. The relative paucity of graduate students in developmental psychology at Hokkaido University means that all responsibilities for the successful execution, analysis and interpretation of the Hokkaido work rests on the Principal Investigator and his senior staff. Given the many additional responsibilities these senior investigators have, the pace of research output is slow. This problem should be addressed by effective recruiting techniques, and by offering of fellowships or assistantships to attractive high-quality students graduating from leading undergraduate universities.

Computerization of the research facilities at Hokkaido University seems desirable as well. Such computerization would facilitate the pace of research output by making more rapid translation of raw data into numbers capable of being handled by large mainframe computers.

In addition to these problems of execution, there is one conceptual problem that I

think needs to be addressed. The problem deals with the measurement of the mother-infant interaction. To date, most of the measures of mother-infant interaction have proven statistically nonsignificant, in contrast to the findings concerning temperament. Part of the reason for the pattern of nonsignificant findings may be that the investigators in focussing on infant contributions to socialization outcomes may have centered their data gathering methods more on the infant than on the mother. Future research needs to devote more attention to the role of the mother as a determinant of infant behavior. The recent orientation of the Hokkaido laboratory toward the investigation of maternal emotional communication styles appears to be an appropriate step in this direction.

In sum, the major drawbacks of the research project appear on the whole to be in the execution and analysis of data, rather than in the design, data collection, or interpretation of findings. These problems are resolvable, but should be addressed promptly in order to facilitate the dissemination and publication of the findings of what is truly a first-rate research project.