HOKKAIDO UNIVERSITY

Title	COMMENTS ON PRE-CONFERENCE WORKSHOP : NEW DIRECTIONS FOR INFANCY RESEARCH
Author(s)	BELL, Richard Q.
Description	
Citation	乳幼児発達臨床センター年報, 10, 45-48
Issue Date	1988-03
Doc URL	https://hdl.handle.net/2115/25241
Type	departmental bulletin paper
File Information	10_P45-48.pdf

Hokkaido University Collection of Scholarly and Academic Papers : HUSCAP

COMMENTS ON PRE-CONFERENCE WORKSHOP : NEW DIRECTIONS FOR INFANCY RESEARCH

Richard Q. Bell
University of Virginia

This was an unusually productive workshop because it was small enough that all participants had an opportunity to become acquainted and exchange views, and because of the high level of expertise and variety of viewpoints represented in the participants. It is an indication of the respect held for Professor Miyake and his colleagues that scientists from all over the world would take the time before the ISSBD meeting to convene in Hokkaido.

I will make an effort at synthesis and integration of four issues or themes that were brought out at more than one time by different investigators. One of these had to do with the systems approach to understanding the parent and child, a second with the functional versus assessment or psychometric approach, a third with situational and cultural correlates of temperament and attachment, and a fourth with early origins.

Hanuš Papoušek drew attention to the importance of the systems approach in the historical development of research on infancy, and reported his own research on the parent-child system, particularly intuitive parental capacities to support infant thinking and acquisition of speech, considered as an environmental effect. The systems approach would also indicate the need to consider the effect of the infant's or young child's efforts at thinking and speech on behavior of the parent. We may ask what developmental changes in the infant might play a role in eliciting the intutitive capacities of the parent? The infant's behavior is a part of the parent's environment, just as the parent's intuitive behaviors create an environment for the infant.

Further, Alan Fogel pointed out that we must also consider the dynamic nature of the system. The parent-infant system is a moving system. If the parent's behavior affects the infant, then it must be reset for interaction with a new state in the infant. J. McVicker Hunt referred to this dynamic interchange, back in the 1960's, as the " problem of the match (Hunt, 1966)." The parent must continuously adjust responses so as to provide a challenge for the infant, but at the same time carefully avoid overwhelming the infant. The infant, in turn, is capable of much more complex event perception when it is presented with stimuli of changing rather than static form, as George Butterworth pointed out in reviewing current themes in research being carried out in Western Europe.

At first glance it might appear that the assessment or psychometric approach is inappropriate to the study of a continuously evolving systems. This is true only if there

---

Professor Bell chaired a symposium at the Pre-Conference Workshop.

Reprint request shonld be addressed to Dr. Richard Bell, Universioy of Virginia, Chareottesville, Virginia, 22901, USA.

is a single assessment. The psychometric approach is not limited to a single assessment any more than the functional approach is. Furthermore, psychometric theory can teach us how best to shape and interpret measurements carried out in the functional approach. For example, some have questioned the meaningfulness of a relationship obtained between neonatal irritability (e. g. a summary of several repetitions of the RIS test) and later attachment, since the summary concealed considerable variation from one repetition to another. It was advocated that we study the bases for the variations before we conclude that there is a valid relationship between neonatal irritability and later attachment. Indeed, it might prove worthwhile to study these variations, but psychometric theory would tell us that the fluctuations in irritability between repetitions of the test may be *less* meaningful than the summary score. Whether or not we are carrying out assessments in a continuously evolving or static system, a given sample of behavior reflects (1) error variance, (2) variance specific to the measure, (3) variance that this measure shares with several other measures and (4) variance that this measure shares with all others of the same kind. The question is whether the variability shown by the infant is simply error variance, or a reflection of a basic change that should be studied further. If it is error variance, a variety of independent factors are converging to produce changes specific to a particular moment, few hours, or a day in the infant's life. For example, right now the infant may need a diaper change, be hungry because the last feeding happened to be brief, or be sleepy because some new endocrine system is coming into action for the first time. In the next moment, hour or day there may be a new convergence of factors, and the pattern of change between behavior samples may itself be heavily affected by error of measurement. Thus, an effort to trace out all the determinants of a single measure could very well lead to some rather mundane discoveries of little psychological value. This is particularly true of the neonate but also more generally true of all psychological measurement, as Epstein has pointed out in a series of articles dating from 1980 in the *American Psychologist* (*e. g. Epstein, 1980*). He has summarized considerable evidence that error of measurement is much more often than we have recognized to be the underlying problem in our efforts to characterize behavior. Fortunately, Miyake and Chen summarized several tests for reaction to interruption of sucking, as Epstein would recommend, and this summary score from the neonatal period indicated validity by a significant relationship to later attachment. It should also be possible to test the hypothesis that valid variance in the individual measures has been lost in the summary, rather than error of measurement, by comparing the correlations of the individual measures and later attachment with the correlation obtained using the summary measure.

Psychometric theory also tells us that summarizing a variety of different measures, not just repetitions of the same measure, has considerable value. Not only will error of measurement be reduced, but variance specific to each measure will be eliminated, possibly revealing a factor common to several or all of the measures. This may be a more meaningful measure than any of the specific measures considered singly. Karin Grossmann reported just such a finding in her own data and that of others. Kuno Beller also provided substantive reasons for summarizing across a variety of measures, in discussing the need to measure attachment with different paradigms. The latter might make it possible to attain a measure of attachment that is not specific to one paradigm.

From the foregoing it can be argued that psychometric theory is a valuable tool for the investigator studying infant development, a way of thinking about the task of measurement. There is little reason to expect that avoiding psychometric theory will lead to better theories or more dependable findings. More likely, if Epstein is right, failure to use this tool may simply lead to more contradictory and ephemeral results from our functional analyses.

We have already mentioned one theme that Butterworth has identified in Western Enropean research on infancy. One other theme concerns the renewed interest in early origins of behavior. Research at the University of Groningen and other centers has shown with ultra-sonic scanning that human fetal movements are remarkably well coordinated and organized. Along the same lines, research by de Lacoste at the University of Texas has indicated that sex differences in early fetal brain development may explain sex differences in language and spatial capability manifest in infancy and childhood(de Lacoste, Holloway & Woodward, 1986). Until these findings it has been assumed that these differences were a result of differential sex-role training. Both the findings from ultra -sonic scanning and on fetal brain development set some limits on Hebb's theory that action in the environment is necessary to organize the functioning of the central nervous system.

Ultra-sonic scanning may ultimately make studies of prenatal individual differences possible. In the meantime, it is encouraging that studies of the neonate and of temperament in older infants show promise of tracing the process by which congenital and genetic factors contribute to development. Kuno Beller reported a new approach to evaluating measures of temperament by examining situational and cultural correlates, and identified dimensions such as persistence, crying, fearfulness, and dependency that seem likely to affect attachment. Kazuo Miyake described a mechanism by which cultural factors and temperament interact in affecting attachment and later compliance. The Japanese culture emphasizes the importance of reflection and deliberation before taking action. Putting Miyake's observation together with some of Beller's dimensions of temperament, it would seem likely that an irritable or persistent infant (taken to mean demanding by the present author) would be in conflict with the culture at the outset. The next question would be " at what point in development would cultural values lead to parental behavior countering these infant tendencies? " Further, " how could these temperament characteristics be countered? " It seems likely that the Japanese mother would not pit herself against the irritable, demanding infant but, rather, would be tolerant and responsive, and only at a later stage of development exert pressure for restraint and delay of gratification. What is the mechanism by which she might be effective? The mother needs a securely attached infant or young child, because it is easier to obtain compliance with an infant or young child that is securely attached and thus is motivated to please its caregiver. It is at this point in the inquiry that we can appreciate the importance of the research on neonatal irritability and later attachment security carried out by Miyake and Chen in Japan, Egeland and Farber (1984), and Crockenberg (1981) in the United States. The latter has reported findings indicating that irritable, demanding infants do attain secure attachment with mothers who are responsive to them (and who showed this orientation toward responsiveness prenatally). It is only the irritable infant with mothers who are not

responsive to them (either because of lack of interest, or lack of social and emotional support from adults) who fail to attain a secure attachment. Thus, infant temperament interacts with the nature of the mother's caregiving, and we have the exciting but challenging task before us of explaining why neonatal irritability predicts insecure attachments not only in the United States samples in which lack of maternal responsiveness was identified, but also in the Japanese samples. In the latter we would expect the mother to be very accomodating to the irritable, demanding infant.

In summary, the pre-conference workshop provided some provocative issues for debate, exciting findings, some indications that these findings may be fitted together, and challenges to take on the next tasks for both research and theory.

References

Crockenberg, S. B. (1981). Infant irritability, mother responsiveness, and social support influences on the security of infant-mother attachment. *Child Development*, **52**, 857-865.

Egeland, B. & Farber, E. A. (1984). Infant-mother attachment: factors related to its development and changes over time. *Child Development*, **55**, 753-771.

Epstein, S. (1980). The stability of behavior. II. Implications for psychological research. *American Psychologist*, **35**, 790-806.

Hunt, J. McV. (1966). Toward a theory of guided learning in development. In R. H. Ojemann & K. Pritchett (Eds.), *Giving emphasis to guide learning*. Cleveland, Ohio: Educational Research Council.

de Lacoste, M. C., Holloway, R. A. & Woodward, D. J. (1986). Sex differences in the fetal human corpus callosum. *Human Neurobiolgy*, **5**, 93-96.