

## **Relating Infant Temperament to Learning Disabilities<sup>1</sup>**

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*The role of infant temperament in the development of learning disabilities was at issue. As infants, boys with severe learning disabilities were found to be (1) lower in activity level, (2) more irregular, (3) less approaching, and (4) more negative in mood than "normal" boys. Discussion centered around conceptualizing learning disabilities as the outcome of a developmental process. Thus patterns of early parent-infant interaction are established, based in part upon the infant's temperament, that may evolve into a learning disability.*

Controversy and diversity regarding the definition and etiology of learning disabilities (LD) continues as an increasing number of factors and models are introduced into the explanation equation (see Ohlson, 1978). Despite such complexity and breadth of approach, efforts at definition and etiology can be classified into two broad areas, one emphasizing organic factors, the other environmental ones (Myers & Hammill, 1969). Within these domains multi-factor approaches inclusive of both organic and environmental variables are taken (Hammill & Bartel, 1975; Bateman, 1966), as are single-factor theories (Dykman, Ackerman, Clements, & Peters, 1971; Silver, 1971).

What seems common to all, however, is an emphasis on discrete, typically immutable factors either originating in the child (i.e., brain dysfunction, biochemical imbalance, etc.) or generated from the environment (i.e., inadequate

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perceptual motor experience, emotional stress, etc). This is in contrast to an interactional position wherein one might search for dispositions in the child that may interact with environmental variables that either exacerbate or mediate their impact.

Such was the approach taken in the New York Longitudinal Study (NYLS; Thomas, Chess, Birch, Hertzog, & Korn, 1963), wherein nine dimensions of infant temperament were identified and their interaction with environmental factors studied. The notion of "goodness of fit" between the child's temperament (behavioral dispositions present at birth) and his/her environment was seen as critical in understanding the development of various behavior disorders. A high-risk group of infant temperament characteristics was found in a disproportionately high number of the study children who subsequently developed some behavior disorder later in childhood (Thomas, Chess, & Birch, 1968).

In further reviewing the LD literature, one finds that there is a dearth of research focusing on the factors in infancy and early childhood that may be involved in what is described later in childhood as learning disabilities.

The purpose of the present study, then, was to determine the potential role infant temperament may play in contributing to the development of learning disabilities.

## METHOD

### *Subjects*

The subjects consisted of 16 severely learning-disabled boys drawn from a suburban Chicago area school district. All had been diagnosed as learning-disabled by a team consisting of school psychologists, learning-disability consultants, and special-education teachers utilizing psychoeducational testing as well as classroom performance in the assessment. The boys ranged in age from 7 to 11.

We should note that these boys were characteristic of the slow-learner hypoactive syndrome described by Browning (1967). Cognitive difficulties in understanding, abstracting, and integrating are typical of this group, as contrasted to the attentional problems and erratic learning styles displayed by hyperactive children.

The comparison "normal" group consisted of 77 boys from a prior study (Scholom, Zucker, & Stollak, 1979). Their age range at the time of testing was 3 to 4. They too came from a middle-class socioeconomic environment.

### *Measures and Procedures*

The Carey Infant Temperament Survey (Carey, 1970b) was the basis upon which infant temperament was assessed. This instrument yields scores on the

nine dimensions of infant temperament identified by Thomas et al. (1963): activity level, regularity of habits, approach-withdrawal from people and objects, adaptability to changes in routines, threshold of responsiveness, intensity of reactivity, general mood, distractibility, and attention span.

Since the infant temperament data were to be collected retrospectively, the Carey was completed by both parents collaboratively (using the same form) so as to minimize potential distortions, as had been the procedure in the Scholom et al. (1979) study.

The brief version of the Child Development Study Questionnaire (CDSQ) (Thomas & Chess, 1977) was utilized to assess the present temperament of the LD boys. The CDSQ was designed with the same NYLS conceptualization and operational approach to temperament as was the Carey. Again, both parents worked collaboratively in completing the CDSQ after they had finished the Carey.

As the possibility exists that perceptions of present child behavior might influence recollections of infant behavior, comparisons were made between the Carey and CDSQ scores. There were no significant relationships, as assessed by Pearson correlation coefficients, found between the infant and child measures. This suggests that parents were able to differentiate present from past behavior. Of course, other implications may be drawn regarding these comparisons, not the least of which concern the overtly manifested stability of temperamental characteristics over time.

Furthermore, the behavior sampled by the items for infants is so different from the questions describing child temperament that the likelihood of perceptions of childhood behavior influencing recollections of infant behavior is again decreased.

Finally, in this regard, the fact that the data from both groups were collected retrospectively allows for between-groups comparisons. While the LD boys were somewhat older at the time of testing, the average Carey scale scores from the "normal" group were quite similar to the original sample upon which the test was developed (Carey, 1970a), the NYLS subjects (Thomas et al., 1963), and other analogous populations studied (Thomas and Chess, 1977). Thus additional support is provided for the validity of utilizing the Carey retrospectively. Until what age is, of course, an open question.

## RESULTS AND DISCUSSION

As present in Table I, *t* tests between the groups indicated that boys with learning disabilities were (1) lower in activity level, (2) more irregular in their habits, (3) less approaching (sociable), and (4) more negative in mood than the "normal" boys. It is important to note here that regularity, approach, and mood are three of the five high-risk temperament characteristics found in the New York Longitudinal Study (intensity and adaptability being the other two).

Table I. Infant Temperament Characteristics<sup>a</sup> for Boys with Learning Disabilities and "Normals"

		Mean <sup>d</sup>	SD	<i>t</i> (two-tailed)	<i>p</i>
Activity level	LD <sup>b</sup>	.69	.41	2.33	.02
	Normal <sup>c</sup>	.48	.31		
Regularity	LD	.65	.52	2.17	.03
	Normal	.44	.33		
Approach-withdrawal	LD	.67	.46	2.80	.006
	Normal	.42	.28		
Adaptability to changes	LD	.54	.38	.87	.39
	Normal	.46	.31		
Threshold of responsiveness	LD	1.09	.43	1.18	.24
	Normal	.97	.35		
Intensity of reactivity	LD	1.09	.33	.66	.57
	Normal	1.03	.32		
Mood	LD	.54	.38	2.25	.03
	Normal	.36	.27		
Distractibility	LD	.70	.29	.03	.98
	Normal	.70	.31		
Attention span	LD	1.00	.43	1.31	.20
	Normal	.84	.43		

<sup>a</sup>Based upon Carey Infant Temperament Survey (1970).

<sup>b</sup>LD group: *n* = 16; age range 7-11.

<sup>c</sup>Normal group: *n* = 77; age range 3-4.

<sup>d</sup>The lower the numerical score, the higher the level of the characteristic present.

In this regard, using the Thomas and Chess (1977) and the Carey (1970a) criteria for defining an infant as being "difficult" or high risk, the LD boys in this sample as a group would be seen as moderately at risk on the basis of their regularity, approach/withdrawal, and mood scores.

Furthermore, the patterning of the other infant temperament scales (mild intensity, low distractibility, moderate attention span) is compatible with the hypoactive slow-learner syndrome seen later in childhood. This is in contrast to what we might expect from children who later demonstrate hyperactive characteristics. Clearly, though, this is a question for future study.

In trying to understand the data, we might first ask ourselves what an infant with these four characteristics is like? And moreover what are the possible implications of this insofar as the development of learning disabilities is concerned?

Let us imagine an infant who is characteristically slow to respond (low activity level), does not smile or cuddle very easily (low approach), is irritable (low mood), and is inconsistent or unpredictable in his habits (irregularity). What is the likely impact of these characteristics on a parent? It is quite possible

that such an infant may have a dampening effect on maternal behavior. The mother's level of involvement with the infant may diminish as she is not "rewarded" by the child. In this regard, Clarke Stewart (1973) found that the more an infant cuddles, smiles, or vocalizes to his mother, the more affectionate and attached to the child she becomes and the more responsive she is to his/her distress and demands.

Moreover, if the overall quality of mother-infant interaction is diminished not only will the attachment process be affected but cognitive and perceptual motor development are also likely to be involved. The negative effects of inadequate early stimulation on cognitive and perceptual motor development have been well documented (Bender, 1958; Goldfarb, 1945; Hebb, 1958). As described earlier, our LD boys were hypoactive slow learners. Perhaps some of the origins for this reside in infancy, where their lower activity level and tendencies toward more irregularity, moodiness, and withdrawal than normal boys set in motion a progression of experiences (or lack of them) that results in their present learning disabilities.

While the literature on child effects is burgeoning (see Bell & Harper, 1977; Lewis & Rosenblum, 1976), the study of their developmental outcomes is in its infancy. Thus one can only speculate herein about the potential effects of such infants on their parents and their reciprocal impact.

However, considering the adverse effects of inadequate early stimulation on social/emotional and cognitive/perceptual motor development, might not learning disabilities too be a function of some high-risk dispositions present at birth resulting in some familial causal chain or interaction spiral impeding *all* areas of the child's development? One implication to be drawn from recent work on social learning disabilities (Fremont & Selfert, 1977; Lehr, 1978; Bryan, 1977) is that dichotomizing social/emotional from cognitive/perceptual motor domains may be more a function of our conceptual and methodological limitations than developmental reality.

From this wholistic interactional perspective a range of specific questions can be derived out of a more global one: What happens in the early childhood years that results in a child developing a learning disability at some point later in childhood?

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