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ABSTRACT

This report explores social environmental supports and hazards to emotional, social, and linguistic development in infancy and early childhood. After a discussion of the prevalence and consequences of early language and emotional difficulties, selected studies that examined the effects of social experience on emotional and linguistic growth, including studies that articulated a risk and protective factors approach, are reviewed. Next, the report describes a sample of early intervention programs that bridge the distance between children, parents, educators, and health care and social service providers. The report emphasizes community-based approaches to preventive intervention that provide comprehensive yet intergrated services within a family-centered model. (Contains 251 references.) (Author/MM)

CENTER ON FAMILIES, COMMUNITIES, SCHOOLS & CHILDREN'S LEARNING

Language and Emotional Milestones

On the Road to Readiness

Colleen E. Morisset

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CENTER ON FAMILIES,
COMMUNITIES, SCHOOLS
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National Advisory Panel

Language and Emotional Milestones

On the Road to Readiness

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Report No. 18

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CENTER ON FAMILIES, COMMUNITIES, SCHOOLS & CHILDREN'S LEARNING

The nation's schools must do more to improve the education of all children, but schools cannot do this alone. More will be accomplished if families and communities work with children, with each other, and with schools to promote successful students.

The mission of this Center is to conduct research, evaluations, policy analyses, and dissemination to produce new and useful knowledge about how families, schools, and communities influence student motivation, learning, and development. A second important goal is to improve the connections between and among these major social institutions.

Two research programs guide the Center's work: the Program on the Early Years of Childhood, covering children aged 0-10 through the elementary grades; and the Program on the Years of Early and Late Adolescence, covering youngsters aged 11-19 through the middle and high school grades.

Research on family, school, and community connections must be conducted to understand more about all children and all families, not just those who are economically and educationally advantaged or already connected to school and community resources. The Center's projects pay particular attention to the diversity of family cultures and backgrounds and to the diversity in family, school, and community practices that support families in helping children succeed across the years of childhood and adolescence. Projects also examine policies at the federal, state, and local levels that produce effective partnerships.

A third program of Institutional Activities includes a wide range of dissemination projects to extend the Center's national leadership. The Center's work will yield new information, practices, and policies to promote partnerships among families, communities, and schools to benefit children's learning.

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Abstract

This report examines the social environmental supports and hazards to social, emotional, and linguistic development in infancy and early childhood. It discusses the prevalence and consequences of early language and emotional difficulties -- two common "roadblocks" to later academic success. This is followed by a selected review of recent studies that examine the effects of social experience on emotional and linguistic growth, including studies that articulate a risk and protective factors approach. The report then describes a sample of early intervention programs that bridge the distance between children, parents, educators, and health care and social services providers. The report emphasizes community-based approaches to preventive intervention that provide comprehensive yet integrated services within a family-centered model.

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THE ROAD BEGINS AT HOME

Today's schools face an enormous challenge. According to a Carnegie survey of more than 7,000 kindergarten teachers, 35 percent of this country's children are not ready for academic work when they begin school. When asked what problems most restricted school readiness, the teachers cited deficiencies in language and lack of emotional maturity (Boyer, 1991). Many of these children may never "catch-up." In the 1980's there was a dramatic increase in kindergarten retention (Shepard, 1989). In the year 1986, state rates of kindergarten retention were as high as 10.5 percent and, in some communities, close to one-fifth of the children were required to repeat first grade (Grissom and Shepard, 1989).

Schools are overwhelmed by the number of children who lack the physical, emotional, and intellectual skills and experiences necessary for successful learning, yet schools alone can't fix these problems. Current practices of waiting to act until children exhibit academic difficulty are inefficient. Waiting can permit negative situations to worsen and affect further development so that when remediation does begin, it is more intense, long-term, and expensive. By applying band-aid models to school readiness we overlook a powerful way to help all children, including those in need. In order to prepare children for learning, and reduce the risk of school failure, we must support children's development right from the start.

The first three years of life are a time of unparalleled change in physical, intellectual, and social-emotional ability. By age one, previously helpless infants are capable of stalking the family cat; by age two, cries and smiles have given rise to "no go night-night" and "I He-man Mommy"; and by age three, many children have treasured toys, favorite foods, and a social agenda all their own. In the process of these early accomplishments, a way of being and of knowing emerges that can have a profound impact on later learning and social development.

By the time a child is three, she has learned that the world is safe - or not; that her actions are effective - or not; and that others are dependable - or not (**ZERO TO THREE**, 1992). These extraordinary lessons result from ordinary everyday events. In a caring environment, children's relationships with adults teach them to feel effective, important, and secure. Because early environmental experiences affect the various developmental domains separately and in combination, seemingly simple activities (such as play with a warm and responsive caregiver) can impact a wide range of abilities, including problem-solving, language development, and emotion regulation. In contrast, when caregivers do not respond sensitively and consistently to children's needs, children learn to squelch their curiosity and ambition and can grow to feel helpless and worthless.

This report concentrates on the social environmental supports and hazards to social, emotional, and linguistic development in infancy and early childhood. It begins with a discussion of the prevalence and consequence of early language and emotional

difficulties -- two common "roadblocks" to later academic success. Then, the terrain of early development is mapped in a selected review of recent studies of social experience and emotional and linguistic growth. Following that, a sample of early intervention programs are presented that bridge the distance between children, parents, educators, health care, and social service providers. Finally, additional ways to reinforce the road to readiness will be explored.

ROADBLOCKS TO LEARNING

Language Delay

Despite wide variation in children's early communicative abilities, language delay is relatively common. The prevalence of speech and language difficulty is reportedly as high as 15 percent among three-year-old children (Jenkins, Bax, and Hart, 1980) and 19 percent among five year olds (Beitchman, Nair, Ferguson, and Patel, 1986).

Language delay in the preschool years is of significant concern for several reasons. First, there is a general association between language and intelligence, and in particular between language delay and low intelligence (Silva, 1981; 1988). In fact, tests of language and intelligence are often very similar. For example, approximately half the Wechsler Primary and Preschool Scale of Intelligence (Wechsler, 1967) consists of verbal tasks such as word definitions, analogies, and general information questions. Moreover, standardized tests of children's language also tap many non-linguistic abilities such as attentional skills, the ability to follow a series of directions, and the ability to sort groups of objects by size or function. Not surprisingly then, correlations between IQ tests and tests of child language are often quite high. Zimmerman and his colleagues report correlations of $r = .66$ and .70 from two studies that compared the Preschool Language Scale and the Stanford Binet Intelligence Scale (Zimmerman, Steiner, and Pond, 1979). Early language delay is also one of the best longitudinal predictors of scholastic difficulties, especially in reading (Badian, 1988; Barkley, 1981; Tramontana, Hooper, and Selzer, 1988; Silva, 1988).

Relations Between Language Ability and Other Aspects of Development

Not only is language delay related to later academic difficulties, it is also related to contemporaneous and subsequent behavior problems. Studies of preschool-age children have shown that language delay at age three is related to behavior problems evident four to five years later (Silva and Williams, 1983; Stevenson and Richman, 1976). Additionally, almost half of the children in treatment for speech and hearing difficulties show behavioral disturbance, meet DSM-III criteria for psychiatric disorder, or suffer from psychosocial stressors (Stevenson and Richman, 1976). The converse is also true. A large proportion of children referred for psychiatric services

also have language difficulties. For example, a language screening of 86 non-retarded 4 to 12-year-olds referred to a mental health center identified previously undetected language problems in 36 percent of the children (Cohen, McDonald, and Davine, 1989). Similarly, a summary of clinical practice with 563 patients ages two years to adult reported language problems in 24 percent (Chess and Rosenberg, 1974). The most common language problems were reportedly delay in achieving major speech milestones (viz., fewer than 15 words by age three years, and/or no phrases by the age of three), less extreme language immaturity, and problems in articulation.

Although the co-occurance of psychiatric and language disorders is well-recognized, their co-morbidity is not well understood. For instance, it is not clear whether behavioral and emotional disturbance is primary or secondary to language difficulties. It seems likely that several different causal processes are involved. For some children, emotional difficulties might stem from the same basic neurodevelopmental etiology that leads to language impairment (Tallal, Dukette, and Curtiss, 1989). In these cases, behavioral and psychiatric disturbances might persist even after the language skills have improved. For other children, emotional difficulties could result from poor school experiences due to cognitive delays, learning difficulties, and academic failure. Thus for these, interventions that are sensitive to the contexts of home and school factors may reduce the risk of concomitant emotional and peer problems (Christodoulou, 1991).

Mental Health Problems Among Preschool and School-Age Children

The National Center for Health Statistics estimates that 13.4 percent of U.S. children ages 3 to 17 years evince emotional or behavioral problems (Zill and Schoenborn, 1990). Several other population-based estimates are also in close agreement with this figure (see Gould, Wunsch-Hitzig, and Dohrenwend, 1981). For example, the Institute of Medicine (IOM; 1989) reports that at least 12 percent of the nation's children suffer from a mental health disorder and that nearly half of these are seriously disturbed. According to the IOM, among children at risk due to extreme psychosocial adversity, the prevalence for mental health disorders may exceed 20 percent.

Emotional and behavioral problems in childhood are often discussed in terms of internalizing problems (e.g., anxiety, fears, social withdrawal), externalizing problems (e.g, aggression, delinquent behavior, poor relations with peers and adults), and impairments or delays in the development of normal functioning (see, for example, Achenbach and Edelbrock, 1981; Achenbach, Howell, Quay, and Connors, 1991). Most childhood problems represent departures from normal development in terms of degree (e.g., excessive separation anxiety) or timing (e.g., bed-wetting beyond the age of five years) rather than specific developmental abnormalities such as autism (Kazdin, 1989). As a consequence, prevalence figures vary according to the threshold or cut-off point used in the various surveys. With the exception of conduct disorder, where the prevalence is much higher among boys (Eme, 1979), mental

health problems occur with the about the same frequency in young boys and girls (Schwartz, Wunsch-Hitzig, and Dohrenwend, 1981). In later childhood, externalizing problems are more common in boys and internalizing problems are reported more for girls (Achenbach, 1982; Achenbach and Edelbrock, 1981; and see Eme, 1979 for a review of this literature).

Studies of environmental stress and emotional problems in childhood often focus on multi-risk families in poverty; however, multi-problem families, and vulnerable children, exist in all social stratum (Mazer, 1972). Children at risk for psychopathology include children of parents with psychiatric disorders; children whose parents have a history of substance abuse or crime; children whose parents have difficulty dealing with stressful life events or are in quarrelsome relationships; children who have been abused or neglected or are in foster care, and children living in poverty (Cicchetti and Toth, 1991; Mazer, 1972; Zilbach, 1971). Many of the same variables that put children at risk for emotional problems have also been identified as risk factors for speech and language difficulties (Golden, Birns, Bridger, and Moss, 1971). Although the causal pathway between broad predictor variables such as socioeconomic status or family discord and children's emotional and linguistic development is not known (Coghill, Caplan, Alexander, Robson, and Kumar, 1986), many investigators (e.g., Morisset, Barnard, Greenberg, Booth, and Spieker, 1990; Ramey, Farran, and Campbell, 1979; Ramey and Gowen, 1980; Rutter, 1984a) believe the effect of such global risk factors is mediated by the quality of parent-child interaction.

Knowledge of Mental Health Problems in Infants and Toddlers is Scarce

Little is known about the prevalence of mental health problems in children under the age of three years. One of the few studies of the prevalence and types of behavior problems in infants and toddlers is that of Jenkins, Bax, and Hart (1980). The sample consisted of 97 percent of all children under the age of five who were living in North London within a catchment area for a newly opened children's center which offered health, education, and childcare services. Over the course of the data collection period (two years), 418 children were seen at the center for a first-time examination. Among children under the age of six months, the number of mother-reported behavior problems was small. Between six months and one year, the number rose to 13 percent; the predominant problems were difficulty falling to sleep and night waking. The percentage of mothers who worried about their child's behavior was highest at age three years, when 23 percent reported problems. At ages two and three, the most prevalent problems were frequent difficulty in behavior management (two percent at age two, 10 percent at age three), extreme child demandingness (15 and 14 percent respectively), and daily or more frequent temper tantrums (15 and 18 percent).

Admittedly, the prediction from toddler to later childhood problems is not certain. However, because even very serious emotional and behavioral disturbances -- including depression and conduct disorder -- are evident in children as young as three

(Earls, 1983, 1982, 1980; Rapoport and Ismond, 1990) and six years (Achenbach, 1982; Kazden, Moser, Colbus, and Bell, 1985), it seems likely that precursors could be identified much earlier. The definition, frequency, and developmental progression of social and emotional problems in the earliest years of life is a new and active area of clinical and empirical research.

One promising avenue of investigation focuses on young children's ability to cope with age-appropriate interactive stress. For the infant, such stressors are relatively common and include experiences such as too much or too little social stimulation, the frustration of goals, violation of expectations, or a brief separation from a caregiver. Observations of infant-adult interaction in a variety of stressful situations show that even pre-verbal infants possess a wide array of coping behaviors, including ways to engage others (e.g., by smiling, cooing, and pointing), disengage from interaction (e.g., by fussing, gaze averting, and turning away), and self-soothe (e.g., by thumb-sucking and rocking). Studies of the match and mismatch between infants' and parents' behavior have begun to identify adaptive and maladaptive patterns of parent-child interaction with babies as young as six months (Field, 1984; Tronick, Cohn, and Shea, 1986). Researchers speculate that when infants repeatedly experience "mismatches" they cannot remedy, they feel ineffective and become distressed and increasingly withdrawn (Cohn and Tronick, 1989).

Much of the evidence of precursors for later emotional and behavioral problems has come from studies of "clinical" populations or clinical symptoms (e.g., mock parental unresponsiveness or depressed mood). Research with extreme groups, such as children of parents with affective illness, contributes to our understanding of emotion expression and regulation by illuminating developmental processes in both normal and atypical populations. Systematic observations of clinically depressed mothers and their infant and toddler-age children indicate that depression is associated with anxious, unresponsive, angry, and hostile caretaking behaviors (Anthony, 1983; Cohn, Matias, Tronick, Connell, and Lyons-Ruth, 1986; Cox, Puckering, Pound, and Mills, 1987; Field, 1987; Lyons-Ruth, Zoll, Connell, and Grunebaum, 1986; Radke-Yarrow, Belmont, Nottlemann, and Bottomly, 1990; Sameroff, Seifer, and Zax, 1982).

Studies of less severely afflicted women also report a negative relation between depression and parenting ability. Comparisons of mildly and nondepressed women and their newborns describe mildly depressed women as less responsive and less positive toward their babies (Livingood, Daen, and Smith, 1983), less affectionate, and less apt to engage in positive vocal play (Bettes, 1988; Fleming, Ruble, Flett, and Shaul 1988). Similar findings have been noted for mothers and their 19-month-old toddlers. Mothers who had been depressed during the postnatal year were observed to be less interactive and facilitating with their toddlers, whether or not the women had recovered from their postpartum depression (Stein, Gath, Bucher, and Bond, 1991).

The risk of parental mental illness to young children's social, emotional, intellectual functioning is well-documented (Cohler and Musick, 1983; Downey and

Coyne, 1990; Field, Healy, Goldstein, Perry, Bendell, Schanberg, 1988; Gaensbauer, Harmon, Cytryn, and McKnew, 1984; Sameroff et al., 1982; Sameroff, Seifer, Zax, and Barocas, 1987; Stott, Musick, Clark, and Cohler, 1983; Zahn-Waxler, Cummings, McKnew, and Radke-Yarrow, 1984a and 1984b). However, the adverse effects of psychological impairment are not limited to cases of extreme parenting dysfunction. For example, Whiffen and Gotlib (1989) report that, compared with infants of nondepressed mothers, infants of women with postpartum depression scored lower on the Bayley scale of mental development and were more negative during testing at age two months. The implications of these findings are even more striking when one considers the high prevalence of depression among women of child-bearing age. At any given time, it is estimated that 8 percent of mothers are clinically depressed (Weissman, Leaf, and Bruce, 1987). The rate increases following the birth of a child. In a recent review of the literature, Whiffen (1992) estimates that 13 percent of postpartum women meet diagnostic criteria for major or minor depression. Documented rates vary depending on sample and diagnostic criteria, but have reported to be as high as 25 - 30 percent (e.g., Rees and Lutkins, 1971; Gotlib, Whiffen, Mount, Milne, and Cordy, 1989) In addition, transient and less severe postpartum "blues" have been reported by two-thirds of new mothers (Yalom, Lunde, Moos, and Hamburg, 1968).

Studies of early normal and atypical emotional development tend to focus on parent-child interaction because, during infancy and toddlerhood, the child's social and non-social object worlds are nearly impossible to separate. Social-emotional and cognitive competencies achieved in the first years are directly influenced by the affective qualities of the learning environment (Bruner, 1974). Experiences that optimally support early developments such as the control of internal states, regulatation of social exchanges, and mastery over objects seem to be those that are both nurturing and challenging (Bruner, 1973). A second reason that emotion research is concerned with interpersonal interaction is that problems in the infant and toddler years are often related to transactions between the quality of the parent-child relationship and to characteristics of the child. In normally developing partnerships, caregivers seem to intuitively adapt to their infants' needs (Papousek and Papousek, 1992). Sensitive parents are often readily aware of their baby's likes and dislikes and can tell you if their infant prefers to be bundled up or free to explore fingers and toes, or if he finds gentle rocking or soft singing more soothing. Other parents -- because they lack knowledge of infant development, are unable to cope with stressful life events, or have unmet psychological and social needs of their own -- often have trouble responding appropriately to their infants' signals.

Concern for the emotional well-being of all children is echoed in the World Health Organization (1977) conclusion that "... mental health problems in childhood are sufficiently common to constitute a major concern in the planning of health services and make it impractical for them to be dealt with mainly by specialist services." Because most childhood problems represent a departure from normality where the boundary between what's "normal" and what's not varies according to myriad developmental and environmental circumstances, WHO, along with many other

developmental specialists (viz., **ZERO TO THREE, 1992**), have recommended that prevention and intervention services be offered in a community setting within the context of normal as well as problematic development.

Early interactional problems do not guarantee a childhood of serious emotional difficulties. Many opportunities occur in early development for drastic reorganizations of behavior, including changes in the nature of the parent-child relationship (Kagan, 1980; Egeland and Sroufe, 1981; Vaughn, Egeland, Sroufe, and Waters, 1979). And, with therapeutic intervention, even very maladaptive patterns in infancy can be reversed (Greenspan, 1986). The impressive adaptive potential of children is highlighted further by clinical reports of seemingly "stress-resistant" children. Evidence of well-functioning, self-reliant children can be found even in studies of severe psychosocial adversity and catastrophe such as parental death, institutionalization, homelessness, and war (Anthony, 1987; Fisher, Kokes, Cole, Perkins, and Wynne, 1987; Garmezy, 1983).

Summary: Language and Emotional Roadblocks to Learning

Approximately one-third of the nation's children are at risk for school failure. They include children growing up in persistent poverty, those who live with parents who are poorly educated, and those whose parents -- regardless of social status -- lack the social and personal resources to cope with life stress.

In a national survey of U.S. households in 1988, parents reported that one-fifth of children ages 3 to 17 years had a developmental delay, learning disability, or behavior problem during childhood. The most frequent conditions were delays in growth or development (approximately 4 percent), learning disabilities (6.5 percent), and emotional or behavioral problems (13.4 percent; Zill and Schoenborn, 1990). The co-occurance among these conditions is also high. Many young children referred for speech and language difficulties show concomitant emotional and behavioral problems, and the converse is also true.

No national prevalence data exist for children under the age of three. One reason is that standard categories of handicapping conditions (e.g, learning disability, speech delay) can not be applied reliably to children under three years of age (Meisels and Wasik, 1990). Even if such capabilities could be accurately observed, counts of disability and disorder in children under three would be expected to fluctuate as a function of the normal developmental tasks of this age range. For example, "speech delay" in young infants would be difficult to identify in terms of vocal behavior because like hearing babies, deaf infants also begin to coo at about 10 - 12 weeks and to babble at about 3 - 4 months of age (Lenneberg, Rebelsky, and Nichols, 1965).

Despite the lack of consensus regarding definitions of delay and disability and the continual changes in medical and educational terminology, the bulk of prevalence studies in the U.S. and in England suggest that the extent and magnitude of language and emotional difficulties in the toddler years is sufficiently high to be worrisome.

UNDERSTANDING THE TERRAIN: SOCIAL INFLUENCES ON LANGUAGE AND EMOTIONAL DEVELOPMENT

It is well-established that the psychological and intellectual development of infants and toddlers is strongly related to the quality of parent-child interaction. When children are raised in homes without opportunities for parent-child conversation; where parents are hurried, impatient, or unable to separate their needs from their children's; and where children lack opportunities for exploration and play; language, intelligence, and social competence are likely to be jeopardized.

In the 1960's, inadequate variety and amount of adult-child interaction was discussed in terms of "lack of stimulation." Since then, both experimental and clinical studies have shown that it is the quality of social interchanges, more than the availability of toys and bright colors, that really seems to matter (Rutter and Madge, 1976). Intellectual and verbal stimulation is provided by initiating and responding to children in conversation, not by plopping them down for hours of television programs or videos. Similarly, although it is helpful to provide children with toys and books, it is even more important to provide them with knowing mentors who will mediate these activities by encouraging children to explore on their own and teach them new skills.

In this section, we present the empirical and theoretical links between early social experiences and variation in young children's language abilities; then we discuss several explanations of the relation between stressful life events and the onset of emotional and behavioral problems. Among these is a relatively new "risk" model that attempts to explain developmental competence and dysfunction in terms of risk and protective factors. Later, this framework will be used to analyze the goals and processes of selected successful intervention programs and guide suggestions for further preventive intervention efforts.

SOCIAL INFLUENCES ON LANGUAGE

Language is Learned Through Conversation

Longitudinal studies find consistently that rich and responsive verbal experience is related to subsequent child competence (e.g., Farran and Ramey, 1980; Yeates, MacPhee, Campbell, and Ramey, 1983). Clarke-Stewart, Vander-Stoep, and Killian (1979) report that in each of five different samples, stimulating and responsive maternal conversation was predictive of multiple child competences including cognition (IQ), language (MLU) and positive social interactions with mother. Wells' (1980) longitudinal study of children from 15 to 60 months revealed that parents' responsiveness was highly predictive of children's grammatical development. In addition, several investigators have documented concurrent and predictive relations between mothers' involvement and verbal responsiveness, as measured by the HOME scale, and children's performance on standard measures of cognitive and

psycholinguistic ability from 6 to 54 months of age (Elardo, Bradley, and Caldwell, 1975; Bradley, and Caldwell, 1976a; 1976b).

The precise way in which child-led conversation with adults aids language development is not fully understood. Cross (1984) suggests that a primary process in language learning is children's active comparison of their utterances with those of others. She argues that semantically contingent speech which elaborates the child's verbal behavior (e.g., "he's a soft bunny") provides the child with a meaningful match. In contrast, parental directives which present unrelated information (e.g., "I said put him down") do not. Alternatively, the impact of elaborating versus controlling speech may indicate a more general effect of parents' interactive style (Farran, 1982; Snow, Midkiff-Borunda, Small, and Proctor, 1984; Snow, Dubber, and deBlauw, 1982). For example, a parenting attitude that encourages conversation through the use of contingent and facilitative speech could provide a social-emotional climate in which communication, and thus further linguistic development, is valued and encouraged.

In addition to frequent and reciprocal adult-child communication, implicit and explicit teaching can also promote children's language acquisition (Moerk, 1974; 1976). Properties of maternal speech that serve implicit teaching functions include imitations, expansions, and recasts of child utterances. Expansions and recasts are utterances that preserve the semantic content of the child's prior utterance but alter the syntactic form. For example, the adult version "yes, this is Mommy's juice" is an expansion of the telegraphic child utterance "Mommy juice." Newport, Gleitman, and Gleitman (1977) report significant positive correlations between mothers' use of expansions (with exact or partial imitations) and children's vocabulary growth. Also, parents' use of expansions and recasts has been associated with children's syntactic development, specifically their use of auxiliary verbs such as *is* dancing and *should* try (Barnes, Gutfreund, Satterly, and Wells, 1983; Nelson, 1973; Newport et al., 1977).

Recent research suggests several, non-mutually exclusive explanations for the value of expansions as an aid in language learning. First, extending children's utterances (often with a questioning intonation e.g., "you hurt your finger?") allows adults to check their interpretation of the child's intent and insures meaningful and reciprocal dialogue (Wells and Gutfreund, 1987). Second, expansions, recasts, and repetitions can maintain a single topic across several conversational turns. Through their participation in dialogue, children experience how individual utterances are woven together to form a larger, coherent whole. Such interactive experiences may be related to children's subsequent discourse skills, including event descriptions and emergent literacy skills (Snow, 1989). In addition, by sustaining a topic of interest, expansions and recasts may also benefit vocabulary growth. It is presumed that children learn vocabulary best during periods of joint attention because, when the focus of attention is mutual, adults are most likely to encode those aspects of the environment that are already apparent to their children (Tomasello and Farrar, 1986; Tomasello and Todd, 1983). Finally, expansions may facilitate language development by eliciting children's imitations (Folger and Chapman, 1978). Studies of

spontaneous imitations report that children tend to imitate forms that are beginning to emerge in their own spontaneous speech (Bloom, Hood, and Lightbown, 1974; Folger and Chapman, 1978). Bloom et al. (1974) suggest that children's selective imitation helps establish relatively new aspects of structural and lexical knowledge. As children become more proficient at speaking, the frequency of maternal expansions diminishes (Seitz and Stewart, 1975).

Social-Class Differences in Parent and Child Language

Group comparisons based on family social status (SES) have shown differences in child language ability and in those aspects of parental speech thought to promote language acquisition (see Ramey and Finkelstein, 1981, for a review of the relation between SES and children's intellectual performance). Compared with middle-SES mothers, lower-SES mothers are reported to be less stimulating and less responsive (Barnes et al., 1983; Ramey et al., 1979; Tulkin and Cohler, 1973; Schachter, 1979; Tulkin and Kagan, 1972), less sophisticated in language use (Hess and Shipman, 1965), more restrictive and controlling (Bee, Van Egren, Streissguth, Nyman, and Leckie, 1969; Clarke-Stewart 1973, Clarke-Stewart et al., 1979; Schachter, 1979), and less descriptive (Snow, Arlman-Rupp, Hassing, Jobse, Joosten, and Vorster, 1976).

The relation between social status and parental speech style is often accounted for in one of two ways. Some speculate that social status differences in parenting style and child competence are due in part to the inclusion of high-stress, multi-problem families in studies of lower-SES groups. For instance, Maccoby (1980) speculates that parenting styles would appear more similar across social strata if comparisons excluded high-stress, multi-risk families from lower-SES groups.

Alternatively, Bernstein (1960) and others (Golden and Birns, 1968; Maccoby, 1980; Olim, 1970) propose that lower social status is a marker for a constellation of education, social, and economic disadvantages that can have a negative impact on parental functioning and on the nature of parent-child communication. Studies of environmental stress and mothers' level of social support show that social support is related to quality of infant-mother attachment and mother's verbal and social responsivity toward her child (Crockenberg, 1981). Similarly, Colleta (1979) reported that mothers without adequate social support were more punitive and restrictive toward their preschool age children.

The association between parents' lack of social support and negative quality parent-child interaction is worth further consideration. It may be that lack of support is causally related to hostile and unresponsive parenting. Or (or additionally), perhaps adults who lack the ability to form and maintain mutually rewarding friendships with other adults also have problems establishing warm and responsive relationships with their children. A recent study by Hoff-Ginsberg (1989) suggests this is possible. She found that social status differences in mothers' speech to their children could not be accounted for by differences in the types of interactive settings or mothers' beliefs

about child-rearing. Rather, she proposes that social status differences in maternal speech are due to more fundamental differences in mothers' conversational and social skills with both children and adults.

Arguments that favor a general association between parental interactive style and child competence would be strengthened if the same parenting behaviors predicted child outcomes both between and within social classes. This approach was taken by Bee and her colleagues (Bee, Barnard, Eyres, Gray, Hammond, Spietz, Snyder, and Clark, 1982) in a longitudinal examination of child language and IQ within and across two levels of maternal education. They found that quality of the home and ratings of parent-infant interaction in the first year of life were predictive of four-year child outcomes in both high (more than high school) and low (high school or less) education subsamples. These results indicate that qualitative differences in mother-child interaction are predictive of child outcomes above and beyond the effect of family social status, as indicated by maternal education.

Story Book Sharing Promotes Language Skills Now and Later

In addition to encouraging frequent and reciprocal conversation, some parents also take advantage of opportunities to teach language explicitly during games and routine events (Ninio and Bruner, 1978; Ninio, 1980a; Murphy, 1978; Messer, 1978).

Observational studies of parent-child book reading in middle-class homes describe many behaviors that appear to facilitate language acquisition and teach children ways to interact with text. These behaviors include parents' use of open-ended wh- questions (viz., *who, what, where, why,* and *how*), direct labeling, fine-tuning utterances to the child's level of understanding, and providing corrective, informative feedback (Demetras, Post, and Snow, 1986; Moerk 1974, 1976; Nelson, 1973; Newport et al., 1977; Wells, 1990; Whitehurst and Valdez-Menchaca, 1988). Links between picture book reading and subsequent language ability and school achievement have been suggested by many researchers (e.g., Ninio and Bruner, 1978; Snow and Goldfield, 1983). Wells (1985) reported that the frequency of listening to stories in the home at ages one to three years was significantly associated with literacy scores and teacher ratings of children's oral language skill at ages five and seven years.

The means by which sharing story books with children promotes language learning is not completely understood. Verbal routines may play a role. Ninio and Bruner (1978) speculate that children learn labels of objects by participating in routinized dialogue rather than through direct imitation. Ninio (1980b) demonstrated that mothers' labeling is highly conventionalized and generally restricted to the whole rather than to parts of the named object. In addition to being a routinized event, the context of book sharing may also lessen information-processing demands because the topic of conversation is limited to the objects and events depicted in the story. The importance of joint attention for vocabulary growth has been examined by Tomasello

and Farrar (1986), who concluded that children learned new vocabulary words best when mothers followed children's interests and topics during book reading.

The extent to which book reading allows children to practice their burgeoning language skills depends largely on the discourse style of the adult conversational partner. In a study of middle-class families, Wheeler (1983) identified many developmentally sensitive changes in parent-child discourse from ages one to four years. As would be expected, labeling routines directed by relatively concrete questions (e.g., "what's that called?") were more common at the younger ages; at the older ages, mothers tended to ask more open-ended questions that went beyond the immediate scope of the book (e.g., "uh-oh, what will happen to George now?").

Social-Class Differences in Parents' Reading Style

Like the studies of mother-child conversation, comparisons of book reading based on family social status and maternal education have also revealed individual and group differences in mothers' discourse style (Ninio, 1980b, Snow et al., 1976; Snow and Ninio, 1986). Ninio (1980a) suggests that these differences may have important implications for children's learning. She hypothesizes that the use of direct labeling and pointing questions, a style more characteristic of lower social status mothers, may be adequate for early lexical development but would not support more complex language development because is not sensitive to changes in the infants' capabilities. Similarly, Blank (1975) has suggested that deficits in reading and school performance may be more common among preschool children from lower social status families due to their limited home experiences with more cognitively demanding, open-ended questions such as *why, how,* and *when.*

Changing Reading Style Improves Children's Language

Many investigators have speculated how parents' behavior during book sharing could enhance young children's vocabulary and grammatical development. Until recently however, empirical proof of this association has been missing. Now, causal links between aspects of mother-child discourse during book reading and children's vocabulary and syntactic abilities have been demonstrated (Whitehurst, Falco, Lonigan, Fischel, DeBaryshe, Valdez-Menchaca, and Caulfield, 1988). Whitehurst tested a four-week intervention program that altered the frequency and timing of parents' speech during story time. Parents in the experimental group received less than one hour of instruction in "dialogic reading" techniques that encourage children's active participation in "reading" the story, including ways to ask questions, elaborate children's comments, and make progressive changes in their interactive style as their children matured. Control families also read to their children but did not receive any instruction. At the end of the treatment period, children in the experimental group outscored those in the control group on tests of verbal expression and receptive language, and in observed grammatical skill. At follow-up nine months later, the experimental group continued to outscore the control group in tests of expressive language by an average of six months.

Similar results were obtained by Valdez-Menchaca with a sample of working-class poor Mexican children in daycare (Valdez-Menchaca and Whitehurst, 1991). In this study, the intervention consisted of 30 reading sessions (about 10 minutes in length) conducted every weekday during the child's preschool schedule. Significant treatment effects were found in assessments of expressive and receptive word knowledge and verbal descriptions.

Whitehurst's "dialogic reading" technique appears to be a simple yet potent way to enhance young children's opportunities for language learning at home and in school. New studies, inspired by these findings, are currently underway. For example, Whitehurst and his colleagues (Epstein, Smith, Glenn, Whitehurst, and Arnold, 1992) have designed a home-plus-school version of the program and are testing its effectiveness within Head Start programs in Stony Brook, New York. In Seattle, Washington, researchers have modified the home-based version of the program in order to reach over 120 two-year-old children and their families through the public library system. The Seattle program (SPARK: Seattle's Parents Are Reading to Kids) is also unique in that the recruiting process has established links between the library and many different types of community resources including day cares, community centers, children's health clinics, local businesses, and restaurants (Morisset, 1992).

Early Language Accomplishments May Make a Difference Later

Traditionally, studies of toddlers' language achievements have drawn on samples of normally-developing white children in middle-class families. Based on these data, early individual differences in ability were thought to be of little prognostic value. However, recent studies of at-risk populations suggest that individual strengths may act to buffer development in otherwise compromised circumstances.

In a study of 68 toddlers from socially and financially impoverished homes, 24-month vocabulary was one of the best predictors of language ability (assessed in conversation and by standardized testing) over the third year of life (Morisset, 1991a). Additionally, significant sex differences favoring girls were found on multiple language measures from 20 through 36 months of age (Morisset, 1991b). These findings would not be expected based on knowledge of language development in low-risk populations where sex differences and early language achievements are thought to have little long-term consequence.

Additional research is needed to understand the variation in language competence in high and low-risk populations and the multiple factors that affect that distribution over time. For instance, children differ greatly in the age at which they begin to speak. First words commonly occur around the first birthday, although some children do not begin to speak until the age of two. Of these, some progress normally while others do not (Thal and Bates, 1989). Developmental data on age variations in language ability among children with and without social-behavioral-emotional problems are needed to determine the etiology and significance of delayed speech onset

and to direct intervention efforts toward those children unlikely to "just grow out of it."

Summary: Social Influences on Language Development

Within the first years of life, a baby's ability to think and feel is developed through relationships with those who care for him. While nearly all children will learn to speak, only some will achieve the ease and fluency with words necessary to retell a playground mishap, read a story to a younger brother or sister, understand the label on a medicine bottle, or fill out their first job application.

Consistent, sensitive, and responsive caregiving from birth onward helps build school readiness by encouraging children to be sociable, confident, and eager to know. Research of the last several decades has sought to identify reasons why children from lower-income homes are more likely to experience developmental delays and language difficulties. A common approach has been to isolate factors that distinguish middle- and lower-income families, assuming that those factors more characteristic of middle-income homes are responsible for greater intellectual gains.

Only recently have investigators moved beyond social group comparisons to examine factors related to variation in child functioning within risk populations. Because these studies can control for potential confounds such as parental education and social status, they provide the most compelling evidence that sensitive and responsive social experiences are important to young children's development regardless of family social status.

SOCIAL INFLUENCES ON EMOTIONAL DEVELOPMENT

Theories of Psychopathology: Comparing Models

Traditionally, mental health research has concentrated on the expression of maladaptation and dysfunction. Emphasis has been placed on identifying patterns of symptoms, their source, and their treatment. Early theories about the origin of emotional disturbance assumed a fixed link between precipitating events and emotional disturbance. Since then, more progressive diathesis-stress and vulnerability models have been articulated to account for the additive, multiple influences of genetic, environmental, and personal factors in the realization of emotional disturbance. According to developmental psychopathologists, these models are also limited -- primarily by their inability to explain the wide range in normal and pathological responses to the proposed risk conditions. An additional problem is that, by explaining various forms of disturbance in terms of separate models of pathology, such models tell little about the aspects of normal development which have gone awry (Cicchetti and Schneider-Rosen, 1984).

A Current Perspective: The Framework of Risk and Protective Factors

Rutter (1984a, 1984b, 1985a) and others (e.g., Cicchetti, 1984; Garmezy, 1983; Garmezy, Masten, and Tellegen, 1984; Sameroff, 1986; Sameroff and Seifer, 1983; Sroufe and Rutter, 1984) have begun to articulate a risk model of psychopathology which overcomes many of the aforementioned deficiencies. In contrast to previous theories of psychopathology, the risk approach focuses on the consequences and processes by which risk conditions can lead to pathologic and normal developmental outcomes.

Like vulnerability models, a risk and protective factors approach assumes there are multiplicative interactions among variables over time. However, unlike those models, a risk approach proposes a dynamic set of inter- and intra-individual factors which modify a person's response to stress and adversity. Central to Rutter's (1984) description of the risk model is the notion of a "cognitive-set," itself the product of interpersonal and individual experiences over time, which acts as an internal filter to modify a person's interpretation and response to later stressors. By examining both stress and coping, Rutter and his colleagues promote a more comprehensive view of adaptation and competence -- one that can address long-standing clinical and empirical evidence that, even in the most stressful conditions, many individuals continue to function adaptively and effectively (Rutter, 1985a).

In brief, the risk and protective factors model recognizes the complexity and diversity of human experiences, and of human responses. It is based on the assumption that the impact of "risky" experiences depends on an individual's response to the risk condition. Numerous factors can modify the consequence of stress and adversity, including the nature of the stressor (chronic vs. acute; one vs. many) and intra- and interpersonal factors that can act to exacerbate or attenuate deleterious effects. Factors which increase the effect of stress (either through simple additive or more complex interactions) are termed "vulnerability" factors; factors which reduce the effect of stress are termed "protective" factors (Cicchetti and Toth, 1987; Rutter, 1979).

The utility of the risk framework is increasingly well-recognized. For example, recent reports from the U.S. Congress Office of Technology Assessment (OTA) and the Institute of Medicine discuss the emotional and behavioral problems of children and adolescents in just these terms. Specifically, they acknowledge numerous social environmental "risks" to mental health, including poverty, parental mental illness or substance abuse, families who abuse or neglect their children, families with high levels of conflict and discord, homeless families, teenage parents, families with a child with a serious childhood illness, and AIDS (U.S. Congress, Office of Technology Assessment, 1986; Institute of Medicine, 1989). Furthermore, OTA suggests that "it may be possible to prevent the development of some mental health problems by reducing certain risk factors and ameliorating the effects of others" (U.S. Congress,

Office of Technology Assessment, 1986, p. 61), thus implying that the relation between risk experiences and their consequences is both dynamic and mutable.

"At-Risk" is Only a Probability

Initial support for a risk approach to the development of psychopathology was obtained through a series of extensive epidemiological studies of ten-year-old children and their families on the Isle of Wight and in urban London (Rutter, Cox, Tupling, Berger, and Yule, 1979; Rutter, Yule, Quinton, Rowlands, Yule, and Berger, 1979). Subsequent analyses of studies including much younger children (e.g., Sameroff et al., 1987; Morisset et al., 1990; Werner and Smith, 1982) attest to the generalizability of the model.

One of the most influential findings from these and other studies is that the impact of a single family stressor on child competence appears negligible. In contrast, the effect of a series of stressors, or several concurrent stressors, increases multiplicatively and appears to amplify the negative impact of each (Barnard, Booth, Mitchell, and Telzrow, 1983; Lyons-Ruth et al., 1986; Sameroff et al., 1987; Rutter, 1979; Rutter, Maughan, Mortimore, Ouston, and Smith, 1979; Werner, 1986; Werner and Smith, 1982).

Risk and Protective Factors in Response to Social Environmental Stress

Within the risk framework, children's responses to acute or chronic social environmental stress can be modified by the timing of the event, individual characteristics such as age, sex, temperament, and cognitive interpretation, characteristics of relations with and among family members, and the availability of extra-familial resources to support and aid the child in developing the ability to manage stress.

Maturation. Maturational-based sensitivities to stressful events are undoubtedly due to dramatic changes in cognitive and socio-emotional skills from infancy to childhood. For example, the stress of separation is thought to be most severe for the child who has established selective attachments (a task of infancy) but is unable to understand that separation from attachment figures does not imply abandonment (Rutter, 1985a). According to Rutter (1984b), age-specific vulnerabilities are more apparent in response to some events than to others and seem particularly evident during the preschool years.

One reason why the earliest years are vulnerable is that development during this period undergoes extensive and rapid change. Changes in a child's capacity for self-regulation, mobility, social responsiveness, and representational thinking present new challenges for parents. Parents who are comfortable preparing for the birth and care of their newborn can feel overwhelmed by the same child as a walking, talking, unpredictable toddler. For instance, the "terrible-twos'" natural curiosity and

eagerness to make sense of the world around them causes most parents to feel anxious about their ability to keep their baby safe, their child's growing assertiveness, independence, and intentionality. When this normal developmental stage of separation and self-discovery is misinterpreted as dangerous or as a time of rejection or misbehavior, parents can inhibit important opportunities for grc wth and learning by withdrawing, becoming harsh and intrusive, or becoming overly restrictive and protective. Unless other more skillful caregivers are available, such patterns may persist until the child is old enough to go to school.

For parents experiencing extreme social, personal, and economic stress, the early years of children's development can be especially trying. Greenspan (1982; p. 19) observes that multi-risk families are "rarely able to negotiate an infant's development into the second year of life without there being evidence of disruption in their infant's development and a need for specific services to overcome it."

Another line of evidence that personal experiences can have different meanings for children of different ages comes from Glen Elder's study (1974) of the effect of severe economic hardship on two cohorts (born in 1920-1921 and 1928-1929) and living through the Depression. He notes that adverse outcomes were concentrated in the younger cohort (who were 5 to 7 years at the time of severe deprivation), and were most evident among the males of deprived families. Unlike their older counterparts, as adolescents the younger boys from deprived families were characterized as more reluctant, self-defeating, and self-pitying. These personality differences persisted throughout adulthood and interfered with marital relationships (Elder, Caspi, and Downey, 1986). Elder speculates that changes in family structure and parental roles accompanying economic deprivation took a greater toll on the younger children because they were at a more malleable stage of psychosocial development, and by virtue of their young age, they experienced family disruption for more years (Elder, 1979).

Child's sex. Compared with vulnerabilities due to developmental level, sex differences in children's reaction to stress and adversity are more uniform. Though the reasons are not clear, it is well known that boys show more severe and prolonged behavioral disturbances in response to a variety of stressors. Such stressors include those associated not only with wide-scale societal hardship as noted above, but also with more personal events such as entry into daycare, the birth of a sibling, family discord, parental depression, and divorce (Earls, Beardslee, and Garrison, 1987; Hetherington, Cox, and Cox, 1982; Nadelman and Begun, 1982; Rutter, 1970; Wolkind and Rutter, 1973). In a two-year longitudinal study of the effects of divorce on preschoolers, Hetherington, Cox, and Cox (1979) reported that, compared with children from non-divorced families, boys from divorced families experienced more intense and long lasting adverse effects, including more anger, hostility, dependency and aggression, less task orientation, less imaginative play, and less time interacting with their peers. Disruptions in play and social relations were also found for girls from divorced families, but for girls, the effects diminished by two-years post divorce.

The pervasiveness of male vulnerability to both psychosocial and physiologic stressors has sparked numerous theories encompassing genetic (Rutter, 1970), maturational (Staz and Zaide, 1983), physiological (Gerschwind and Galaburda, 1985; McCardle and Wilson, 1990), and experiential (Brooks-Gunn and Matthews, 1979; Cherry and Lewis, 1976) factors. As yet, a definitive explanation has not been found.

Temperament. Temperament can also modify children's response to psychosocial stress. Temperament can work directly, through its influence on the child's perception of and reaction to the stressor; and it can offset environmental risk indirectly, through its effect on the parent-child relationship. An "easy" temperament can protect against negative events such as perinatal complications, parental psychopathology, family instability, and chronic poverty because children characterized as easy to soothe, affectionate, and good-natured tend to elicit positive responses from others, including their caregivers (Werner, 1990). In contrast, children perceived as "difficult" are more likely to be the target of family criticism and hostility because of their defiant and demanding behavior and a history of problematic family relationships (Webster-Stratton and Eyberg, 1982).

Intelligence. Intelligence and scholastic success can also buffer a child against stress, particularly against chronic psychosocial adversity. The mechanism by which positive personality characteristics and intellectual ability exert these protective influences is unknown. Rutter (1985a; 1979) speculates that it could operate via one of two pathways: higher self-esteem and self-efficacy may lead to a less damaging appraisal of the stressful event, or more capable children may have greater problem-solving skills.

Social support. The importance of social support networks and close personal relationships as a potential buffer against social and financial hardship is a growing area of research (Rolf, Masten, Cicchetti, Neuchterlein, and Weintraub, 1990). Evidence suggests that among adults, positive interpersonal relationships and social support can mitigate the effect of stressful life events, and the lack of such intimate relations can increase the detrimental effects of psychosocial stress on parents' psychological well-being, attitudes toward parenting, quality of parent-child interaction, and child behavior and development (Crnic, Greenberg, Ragozin, and Robinson, 1983; Dunst, Trivette, and Cross, 1986; Crockenberg, 1985; Dunst, Vance, and Cooper, 1986). Among adults, supportive social networks typically extend beyond immediate relatives to include friends, neighbors, and larger ecological units such as church, work, or school. In contrast, for the preschool child this potential source of protection, or increased vulnerability, consists primarily of interactions within the family (Bronfenbrenner, 1986).

We do not have a clear understanding of the mediational influences of social support on parental, family, and child functioning. One view is that the mechanism works through the creation and modification of an individual's "cognitive set" (Rutter, 1984b). According to Rutter, a cognitive set is developed as a consequence of on-going social and self-evaluating experiences which begin within the family in infancy

and extend to other social systems over the lifespan. A cognitive set associated with lowered self-esteem, feelings of helplessness, or inability to control bad personal experiences is said to increase a person's vulnerability to subsequent stress. Likewise, a cognitive set associated with stable affectionate relationships and feelings of efficacy and self-worth can bolster the ability to cope with frustration and difficult circumstances.

Early attachment relationships. Investigators guided by attachment theory have developed a similar set of predictions about the relation between nurturant relationships and one's ability to cope with stressful live events. It is hypothesized that an internal working model of self-efficacy and self-worth, as reflected by secure infant-mother attachment, would provide a supportive base for subsequent cognitive development and social adaptation. Support for continuity from quality of attachment in infancy to problem-solving and peer-relations in toddlerhood has been established by Waters, Wippman, and Sroufe (1979) and others (e.g., Arend, Grove, and Sroufe, 1979; Matas, Arend, and Sroufe, 1978). In Matas' study (Matas et al, 1978), children rated secure, versus insecure, in infancy were observed to be more enthusiastic, persistent, cooperative and more effective in problem-solving tasks at age two. Interpreted in Rutter's terms, it is possible that positive and stable relationships in infancy, reflected in these studies by secure infant-mother attachment, contribute to a cognitive set of self-efficacy which in turn leads to competence and mastery in toddlerhood.

Longitudinal studies of socially-disadvantaged toddlers also provide evidence of continuity between secure infant attachment and preschool language ability (Morisset et al., 1990), and between insecure patterns of attachment and behavioral problems at age six (Lewis, Feiring, McGuffog, and Jaskir, 1984). This is not to imply that life's course is fixed within the first few years. Most theories of human development that emphasize the importance of the early years allow for the possibility of change as a result of cognitive growth, psychological insight, or new and different settings, conditions, or experiences (Brim and Kagan, 1980). Empirical studies of constancy and change over the lifespan include many examples of successful recovery and self-righting adaptation in response to adverse events, illustrating the developmental and transactional premise of a risk and protective factors model.

Protective Factors Are Not Just the "Good Things"

Within a risk framework, factors which protect a child from stressful events and chronic psychosocial hardship are thought to operate both directly and indirectly over time. Rutter (1985a) observes that protective factors, such as a warm and stable interpersonal relationship, can differ from positive or beneficial experiences in three important ways: (1) they may not be pleasant events at all (e.g., there is evidence that the experience of stress may itself lead to increased resistance to later stress); (2) they may have no detectable effect in the absence of subsequent stressors -- recall that the role of protective factors is to modify the response to later adversity, not foster normal development [e.g., compared with high-risk families, secure attachment appears to show little consistent relationship with early cognitive or linguistic development in.

normal developing low-risk families (Bates, Bretherton, Beeghly-Smith, and McNew, 1982)]; and, (3) protective factors may be a quality of an individual rather than an experience (e.g., temperament and gender may function as protective factors).

Resilience

As discussed here, stress and adversity can have both immediate and long-term effects, with long-term effects sometimes mediated through processes other than the original psychologic disturbance. For example, one way in which risk can have an enduring negative effect on competence is by increasing children's vulnerability to later stressors through the creation of a cognitive set associated with low-confidence and helplessness. In contrast, resilience to stress is characterized by active coping. Rutter (1985a) speculates that coping in the face of adversity is facilitated by a cognitive set associated with feelings of self-esteem, self-efficacy, confidence in one's ability to deal with change, and adequate social problem-solving skills. It appears to be the existence, rather than the nature, of the coping strategy that makes the essential difference.

Rutter's research has identified three protective factors related to children's resilience: a secure, stable affectional relationship; experiences of success and achievement; and, for those children in unavoidable and unalterable deleterious environments, the ability to emotionally distance oneself from the need for a parent's nuturance. As the attachment literature has well-documented, the ability to behaviorally withdraw from emotionally arousing situations is evident within the first year of life. Infants raised by parents who are not emotionally available to them are likely to appear aloof or oddly content in a fearful separation and reunion laboratory situation (Ainsworth, Blehar, Waters, and Wall, 1978). In the same situation as toddlers, they may appear independent, self-reliant or "busy" with a toy despite high levels of physiological arousal. Other youngsters, in an apparent denial of their own unmet dependency needs, may reverse roles and act as caregiver or helper to their own parent (Cassidy, Marvin, and the MacArthur Working Group on Attachment, 1992).

Garmezy (1983) proposed the concept of "required helpfulness" to describe one way in which the stress of living with an emotionally unavailable parent can have a positive effect on children's competence. If the situation is tolerable and gives rise to interactions the child finds rewarding or fulfilling, the consequence of helping others (e.g., a sick parent or younger siblings) can increase the helper's morale, motivation, and persistence, and lead to new problem-solving skills. The caveat is that this presupposes that the child has an initial (even latent) skill level to invoke. The long-term effects of suppressing the need for reassurance and nurturance are not known. Clinical interviews with adolescent children suggest that this form of "coping" may take a toll in terms of emotional openness and ease in later relationships (Weiss, 1979).

At-Risk for Psychopathology: An Example

Rutter (1985a) provides several examples to illustrate the dynamic relation between risk and protective factors within the context of the risk model. For example, among children at risk for emotional disturbance due to parental mental disorder, he proposes that the main risk factor is family discord, with the greatest risk being when hostility directly involves the child. Significant protective factors may include one mentally healthy parent, the maintenance of a good relationship with one parent, and the restoration of family harmony. As noted previously, sex and temperament may also serve as protective factors, with boys showing greater vulnerability for emotional and conduct disorders and "difficult" temperament exacerbating the effect of risk for both boys and girls.

There are at least two short-term effects of the buffer provided by pleasant personality characteristics and a positive relationship with one well parent. One is that "easy" children are less likely to be the target of hostility; second, negative experiences with one parent may be offset by positive experiences with the other. The long-term consequences of these protective influences include ' ' ability to maintain a sense of self-worth and self-efficacy, which in turn can fo .er positive experiences such as success in school or in peer relations. In turn, academic success and friendship with peers could further strengthen the child's cognitive set.

On the other hand, where there is a history of poor relationships and personal and extra-familial resources are lacking, it is unlikely that a young child will have the skills to meet extreme psychosocial challenges. However, there are reports of "resilient" children who seem to be capable of drawing strength from the stressful situation itself, often assuming the role of surrogate caretaker. Anthony (1987) refers to this unusual response as one of "constructive competence" in which children who have positive parent-child experiences early on defend against later adversity by adopting a parenting role. In this role, the children often become indispensable and valuable to the family, which in turn can strengthen their ability to cope with their parent's disability. As mentioned above, this form of coping, while adaptive and even beneficial in the short-term, may have secondary negative effects on other aspects of functioning, such as the ability to form open and trusting relationships.

Although the adaptation of children to parental psychoses provides an extreme case of stress and coping, the point is made that coping successfully can be strengthening. As illustrated by current risk research, children's responses to adversity depend on their individual and interpersonal resources. Investigators fueled by risk models have begun to identify those factors which link "risky" events and experiences with deleterious and healthy outcomes. While this work has just begun, one thing is apparent -- how people meet challenges and overcome difficulties is a function of a complex, transactional, interpersonal, and uniquely individual process.

Applying a Risk Framework to Intellectual Functioning

Rutter and others (e.g., Bradley and Caldwell, 1976a, 1976b; Gottfried and Gottfried, 1984; McCall, Appelbaum, and Hogarty, 1973; Rutter, 1985b) have also applied a risk and protective factors approach to understanding children's intellectual development. Their work shows that family influences on children's intellectual abilities are very different from those related to children's social and emotional functioning.

Family factors that show consistent relations to preschool cognition include variety in parent-child interactions, positive maternal involvement, the promotion of developmentally-appropriate play and pre-academic behavior, supportive family relationships, and emotional openness (Barnard, Bee, and Hammond, 1984; Gottfried and Gottfried, 1984). Negative influences include crowded, noisy, or distracting living conditions, unsafe or restricted learning environments, and negative parent-child interactions (Bradley and Caldwell 1984; Gottfried and Gottfried, 1984; Ramey and MacPhee, 1986; Rutter, 1985b). Family discord and parental mental health are considered less potent risks to intellectual functioning than to emotional well-being (Rutter, 1985b, 1985c; Sameroff, Seifer, Barocas, Zax, and Greenspan, 1987); however, studies have shown a significant relation between maternal depression and developmental problems (Coghill et al., 1986; Cohn et al., 1986; Mills, Puckering, Pound, Cox, 1984; Lyons-Ruth et al., 1986; Tronick, 1981) and between child abuse and language delay (Allen and Wasserman, 1985; Blager and Martin, 1976; Cicchetti and Beeghly, 1987).

Several extensive longitudinal studies (e.g., Morisset et al., 1990; Seifer and Sameroff, 1987; Werner and Smith, 1982) also support these findings. In the Rochester Longitudinal Study (see Sameroff et al., 1987, and Seifer and Sameroff, 1987), early risks to children's intellectual ability (IQ) at age four years included family social status, family stress, parental attitudes, beliefs and knowledge of child development, and maternal mental illness. Similar to other reports of the cumulative effect of risk on child competence, Sameroff and his colleagues note that no single risk factor was predictive of lower intellectual functioning. However, when the multiple risks were considered together, they accounted for about 45 percent of the variation in child IQ.

Summary: Social Influences on Emotional Development

Infants' relation to their social and physical environments develops in the context of interaction with primary caregivers. When caregivers are sensitive observers of their young children, able to read social and temperamental cues and respond to them appropriately, parents and infants develop a sense of effectiveness and adequacy that sets off a spiral of pleasurable and profitable experiences for both.

Researchers working from a developmental model of risk and protective factors have shown that the relation between adversity and subsequent child

functioning is quite complex and involves characteristics of the caregiver, child, and the environment. Longitudinal studies of children from birth onward raised in diverse social and economic circumstances have identified potiential buffers and potentiating factors in development. Specifically, children's responses to acute or chronic social environmental stress appears to be modified by the timing of the event, individual child characteristics such as age, sex, temperament, and cognitive interpretation of the stress, and characteristics of relations with and among family members.

In addition, some children do not appear to succumb to even severe life stress, but instead seem to cope successfully and become well-adjusted and competent. Such children have been called "resilient," "ego-resistant" (Garmezy, 1983), or "vulnerable but invincible" (Werner, 1986). These children are intriguing, yet small in number. Their fortitude should not tempt us to minimize the more pervasive deleterious effects of psychosocial stress suffered by their brothers and sisters.

ALTERNATIVE ROUTES, NOT DEAD ENDS: SUCCESSFUL INTERVENTIONS

This section introduces a small sample of preventive intervention programs for infants and toddlers, describing some characteristics of interventions in general and then presenting four programs in detail. These programs illustrate the evolution from sound developmental principles to successful intervention practices. They represent only a few of the many successful preventive programs for families and young children (see Bricker and Veltman, 1990; Halpern, 1990; Seitz and Provence, 1990; and Simeonsson and Bailey, 1990 for excellent, comprehensive reviews of early intervention programs). Of the programs described here, two focus on promoting early language and pre-literacy experiences, and two on favorable social and emotional development. All four take a family orientation toward service delivery -- that is, they assume that efforts to support parents' ability to care for their children can have significant benefits for parents and children alike.

Defining Terms

Before discussing specific programs, it is important to define some terminology, in particular, the difference between primary prevention and other types of interventions. The concepts come from the field of public health, in which prevention refers to the goals of promoting and maintaining health and minimizing illness, disability, and suffering. Preventive efforts can be classified by their timing and scope. It is customary to refer to three levels of prevention: primary, secondary, and tertiary. Within each level, there are programs that address the well-being of entire communities, and others that focus on subsets of people believed to be at increased risk for physical or mental health problems.

Primary prevention programs attempt to avert problems before they begin. In epidemiological terms, the goal of primary prevention is to reduce the incidence of new cases of illness or disability. Childhood immunization and water fluoridation programs are two examples of universal primary prevention programs. We do not attempt to limit rubella vaccine to children most likely to encounter the virus, nor do we fluoridate drinking water only for the young. These are programs that we feel benefit many and carry risks to few. The philosophy undergirding primary prevention is quite different from a problem-oriented view. In primary prevention the ultimate goal is to prevent problems from occurring. Primary prevention strategies depend on reducing risk factors and promoting protective factors.

Secondary prevention services target individuals whose characteristics place them at increased risk of developing further problems. Like primary prevention, secondary services are provided before problems are evident. For instance, a program that attempts to avert developmental problems due to prematurity by providing education to all parents of premature infants is a secondary, universal prevention. Targeted secondary services also exist. For example, several intensive intervention studies have focused on pregnant women in poverty who lacked social and personal resources (e.g., Barnard, Magyary, Sumner, Booth, Mitchell, Spieker, 1988; Olds and Kitzman, 1990; Seitz, Rosenbaum, and Apel, 1985) with the aim of improving parenting skills and, as a consequence, increasing child competence.

Tertiary programs treat and manage problems once they have occurred. Tertiary programs can be preventative insofar as early treatment may prevent the onset of a different or more serious disorder at a later time. For example, children with conduct disorder before age four years are 50 percent more likely to have antisocial personalities as adults (Robbins, 1986). Thus, the treatment of conduct disorder in the school years may deter subsequent psychopathology in adulthood.

Interventions differ in other ways as well. In addition to community-, home-, or institution-based, services can be provided by professionals, or by non- or paraprofessionals. The timing and duration of interventions also differ. These design differences, coupled with differences in focus and content and differences in the types of target problems, make it difficult to compare interventions. Several recent reviews of programs designed to promote cognitive functioning and social competence report many individual successes, yet caution that most studies have insufficient sample sizes, inadequate design considerations, and too limited follow-up data to offer a basis for generalizations (Barnard, Morisset, and Spieker, in press; Farran, 1990; Halpern, 1986; White and Casto, 1985). Greenspan and White (1985) suggest that questions about the efficiency of early intervention be guided by asking what types of programs are effective for what types of problems. For example, is advice on infant nutrition helpful to parents concerned with basic needs for food and housing? Are center-based or home-based programs more likely to reach children of single mothers lacking reliable transportation and childcare? Is it effective to provide anticipatory guidance regarding play and cognitive stimulation and ignore parents' adult relationship skills?

Moreover, how long must an intervention last in order for families to take over and sustain its benefits?

Successful Programs are Partnerships

Although there is no single "magic" ingredient, intervention programs that have helped seriously disadvantaged families improve conditions for their children are alike in several ways (Schorr, 1988). Among the most important of these is the recognition that parents' abilities to meet their children's emotional and intellectual needs are inextricably bound to their own mental health, social, and educational resources. Thus successful programs take a multi-faceted and integrated approach in which a wide array of services (a ride to the grocery, help dealing with an abusive partner, information about infant health care) are available on a flexible and individual basis. Additionally, programs ensure that their staff meet with families frequently and that their visits last long enough to address families' myriad social, behavioral, psychological, and material needs.

One illustration of a comprehensive and individualized "family support" approach to preventive intervention is the Yale Child Welfare Program. In the Yale program, a small integrated team of mental, health, and childcare professionals provided home-visiting, pediatric, daycare, and developmental services as needed to impoverished inner-city women from the birth of their first-born children to age 30 months (Provence, 1985). Central aims of the intervention were to actively support parents in their parenting role and in their own development, and to provide services to children directly, in the form of daycare or a toddler school program. The short- and long-term effects on child and family functioning are impressive. At age 30 months, intervention children outscored matched controls on measures of developmental and adaptive ability. Five years later, project children had higher IQ scores and better school achievement and attendance. Ten years post-intervention, the project children continued to do better than a comparable neighborhood sample. Although the IQ advantage was not sustained over time, at the ten-year follow-up, there were significant differences in school attendance, pre-delinquent behavior, and the need for special services. Equally important were subsequent differences between the project and control families. Ten-years post-intervention, more project families were self-supporting, more mothers had returned to school, more had delayed subsequent childbearing, and more were involved in their child's schooling (Seitz, Rosenbaum, and Apfel, 1985). The benefits associated with the intervention extend well beyond those of the families involved. Seitz and her colleagues estimate that during the year in which the ten-year follow-up data were collected, an extra $40,000 in welfare and special school services was spent on the (15) control children.

Spanning the Junction Between Health and Early Learning

Promoting pre-literacy skills in a pediatric clinic. The medical clinic is often the first institutional contact for infants and toddlers, especially for children from low-income families. Recognizing this, pediatricians at Boston City Hospital have

expanded their concept of comprehensive health care to include early social and linguistic development through a primary prevention program called ROAR (Reach Out and Read; Needleman and Zuckerman, 1992). At Boston City, the pediatric clinic waiting room now buzzes with volunteer readers who share books with children of all ages. Many parents are surprised by how much even little babies enjoy "talking" about books; and they learn it's never too early to start reading with their children. Waiting room activities are followed-up by discussions with health care providers about ways to promote development by sharing books with young children. Parents receive guidance about their child's development and are given age-appropriate children's books as part of every well-child visit from ages six months to six years.

In the three years since its inception, ROAR has provided families with over 12,000 books at an average cost per family of only $24.00. Although it has not been feasible for clinic staff to assess children's language development directly, a case-control comparison indicated important differences in the home literacy practices of parents who did and did not receive a children's book as part of their last pediatric visit. Parents given a book were approximately four times more likely to report reading with their child or to report reading as one of their child's favorite activities. Additional analyses revealed that the relation was most strong for families at greatest risk due to lack of socioeconomic resources (Needleman, Fried, Morley, Taylor, and Zuckerman, 1991).

ROAR embodies several characteristics of successful interventions. First, guidance about book sharing occurs in the context of a personal relationship with a professional trained in child development, parent-child interaction, and emergent literacy (Needleman et al., 1991). Second, one-to-one discussions allow professionals to individualize their advice according to the parents' self-described reading history and their child's developmental level. Third, frequent book use at home, a relatively simple behavioral goal, is discussed and strengthened repeatedly -- as many as 12 times over a five-year period. Finally, by including families at extreme psychosocial risk, there was maximum opportunity for the program to change the groups' literacy practices in meaningful and measurable ways. ROAR is currently supported by donations and hospital funds. Programs like ROAR represent opportunities to form new alliances among health professionals, educators, literacy specialists, business, and community service agencies.

Promoting school success through parent education. Another program to capitalize on the interrelation between children's physical health and cognitive development was the Brookline Early Educational Project (BEEP: Pierson, 1988). A hallmark of this comprehensive and intensive early intervention program was its collaborative approach to program development, evaluation, and family services. One premise of the program was that children's school competencies could be enhanced if the entire community were better informed about children's learning and development during the first five years of life. This community focus resonated throughout the intervention, even in its recruitment strategy, which drew from sources as varied as hospitals, schools, and recreation programs.

During 1973 and 1974, 285 families were enrolled. The intervention began at birth and continued until the children entered kindergarten. For the children's first two years, services included frequent health and developmental exams, parent education through staff visits to the home and family visits to the project center, and education programs for the children. Parents were randomly assigned to one of three levels of parent education. At the most intensive level, families were scheduled to receive home visits and meetings every three to four weeks and some child care at the center; the moderate level involved these same services at a rate of once every six weeks. Those in the least intensive level did not receive outreach services or daycare. Parents in this group were allowed to use the BEEP center on a drop-in basis and initiate staff contact if they desired.

When the children were ages three and four years, all were offered a half-day kindergarten program. For families assigned to the most intensive level of intervention, school experiences were further bolstered by parent-teacher conferences and classroom observation (Pierson, Bronson, Dromey, Swartz, Tivnan, and Walker, 1983). The intervention phase of the program ended when the children entered kindergarten.

Follow-up observations and teacher evaluations during kindergarten and second grade compared BEEP children with comparable no-treatment groups. Upon entry to kindergarten, BEEP participants were observed to have greater social skills, independent work habits, and reading readiness (Pierson, 1988; Pierson et al., 1983). BEEP children continued to show academic advantages two years later when, compared with an age- and sex-matched control group, half as many scored below minimal levels in the areas of planning and task completion, interpersonal relations, and appropriate use of time. In addition, the proportion of children with second-grade reading difficulty was significantly reduced. Differences were noted in decoding skills and story comprehension (Pierson, 1988; Bronson, Pierson, and Tivnan, 1984).

Owing to a well-considered study design, the investigators were able to assess the relation between program intensity and reading attainment. The three intensity levels (high - moderate - low) corresponded to the following percentages of children who had reading difficulty in the second grade: 28.6%, 31.6%, and 52.2% (Pierson, 1988). Beneficial effects for children of mothers without a college education were found only in the high- intensity parent education group. In contrast, children of mothers who were highly educated showed significant advantages regardless of program intensity.

The lessons from this program are many; not the least of which include the advantage of careful research methodology and a caution against separating the product from the intervention process. Although program effects were evident in academic achievements, BEEP's school orientation evolved over time and as a natural consequence of an on-going developmental focus. The intervention began in infancy and was guided by a model that integrated health, social, and educational services in response to individual-specific and age-appropriate needs. The momentum that led to

greater success in school grew out of a long-term, multidisciplinary, community-based approach. BEEP's comprehensive developmental perspective should not be overlooked in future attempts to replicate its results.

Promoting Social and Emotional Development by Supporting Families

Intermediate targets: Reducing the risk of child maltreatment. Primary prevention of behavior and emotional difficulties has been a goal of relatively few well-controlled studies. Nevertheless, several projects have focused on ameliorating risk factors associated with behavior problems, specifically those related to aggression and conduct disorders. These include characteristics of the child such as reading difficulties, poor school achievement, aggression and acting out behaviors; characteristics of the family such as lack of adequate parental supervision and large family size; and psychosocial factors such as unsupportive family relationships, child abuse, and neglect (Kazdin, 1990).

The goal of the Prenatal/Early Infancy Project (PEIP) in Elmira, New York, was to reduce childhood health and developmental problems, including child abuse and neglect, by improving conditions of pregnancy, birth, and early child rearing (Olds, Henderson, Chamberlin, and Tatelbaum, 1986). Like the Brookline program discussed above, the PEIP program made a special effort to recruit high-risk families but welcomed a range of participants, thus reinforcing the "community" nature of the program and avoiding the impression that program families were necessarily poor or troubled.

The Elmira PEIP strategy relied on nurses making home visits during pregnancy and then five visits over the baby's first two years of life. Activities included parent education, strengthening the family's informal support structure by involving family and friends in child care and support of the mother, and linking family members with other community health and social service agencies. Specific services and treatment goals varied at different points in time. For example, during pregnancy nurses advised the mothers regarding their diet and health habits, helped them prepare for labor and delivery, and encouraged them to make plans for the future such as a return to school or employment. After the birth of the baby, nurses discussed infant health, feeding and sleep habits, and how to interpret and respond to infants' states and cues (see Schorr, 1988; pp. 169-175).

The amount of time spent with each case varied from family to family. During home visits, nurses were attuned to the "real life" context of the family. As necessary, treatment goals were modified in response to more immediate survival needs such as lack of food or loss of a job. The nurse home visitor also mediated between the family and community, social service, and health agencies. For example, the nurses sent physicians written reports about the physical and emotional status of their cases, which helped facilitate more informed and sensitive clinic and hospital care (Olds, 1988).

Evaluation of the Elmira PEIP was rigorous, including the random assignment of families to the intervention or to one of three comparison conditions. The comparison groups differed from the intervention group in level of intensity. One comparison group received no services other than child screening. A second received screening and help with transportation to health care visits. The third received screening, transportation, and nurse visitation during pregnancy. In contrast, the full intervention consisted of all these components and nurse visitor services which began in pregnancy and continued through the child's second birthday.

Results of the PEIP were dramatic. Among women at greatest risk (poor, unmarried teen mothers), those who received nurse-visiting throughout pregnancy and infancy had one-fifth as many verified cases of child abuse and neglect as women who did not. Evaluations in the home revealed that these same women punished and restricted their children less and provided them with more developmentally-appropriate play materials than did mothers in the comparison groups (Olds, Henderson, Chamberlin, and Tatelbaum, 1986). Additionally, among women who reported little sense of control over their lives at the outset of the study, those who received nurse-visiting throughout infancy made fewer visits to the emergency room during their child's first year (Olds et al., 1986). In terms of life change, mothers in this maximum intervention group also had higher levels of employment and fewer pregnancies than the mothers who did not receive nurse visits (Olds, 1988).

Perhaps the most important finding from the Elmira study is that home visitation substantially improved the standard clinic-based prenatal care for the study participants (Olds et al., 1986). Moreover, the project validates the belief that the period surrounding a child's birth is an important window for influencing parenting behavior. During the perinatal months, parents are especially receptive to and eager for information about their child (Helfer, 1987). Brazelton (1992) delineates a chronology of predictable "touchpoints" in pregnancy and early development when parents tend to have many questions about parenting and their child's development. These periods often occur just prior to a rapid growth spurt or change in development. The first occurs in the last few months of pregnancy when parents are full of anticipation about their new baby and accompanying life changes; the second is soon after birth, when parents become aware of their infant's capabilities and unique style. The advantage of preventive interventions that capitalize on these earliest touchpoints of development is that practitioners can establish a trusting relationship with the family during the anticipation and joy of their new baby, well before maladaptive interaction patterns are set in motion.

Primary prevention of behavior problems. Home intervention during pregnancy and early childhood is also a useful strategy to reach families who distrust formal health care services or whose circumstances or cultural beliefs prevent them from attending office or center-based programs. Respect for cultural traditions is particularly evident in the intervention approach of the Houston Parent-Child Development Center (H-PCDC; Johnson, 1988). The H-PCDC, established by the U.S. Office of Economic Opportunity, was designed to promote social and intellectual

competence among children from low-income Mexican American families in Houston, Texas (Johnson and Walker, 1987).

The Center's model was guided by a transactional theory of development (e.g., Sameroff and Chandler, 1975) in which developmental problems are believed to arise through dynamic interrelations between the child and her social and physical environments. At the Houston PCDC, the process by which these pedagogical concepts were translated to a specific treatment plan involved extensive community input about what parents and community members wanted for their children. This information was collected through door-to-door surveys and open-ended discussions, parent-child observations, meetings with local professionals, including Mexican American professionals, and a parent advisory group. The result was a two-stage, two-year intervention that began when the children were one-year of age. Services included home visits to mothers (during year one), a school program for the children (during year two), and group activities in both years one and two designed to include fathers, siblings, and other family members. The program staff was bilingual, and most verbal communication was conducted in Spanish.

Stage one (year one) involved 25 biweekly home visits, approximately one and one-half hours in length. Home visits were conducted by trained paraprofessionals and focused on infant learning, development, child management, and parent-infant communication. Home visitors also offered comfort and encouragement to mothers, many of whom were separated from their own informal network of social support. Mothers also participated in English-language classes. Family workshops, held on weekends, were organized around themes such as decision making and interpersonal communication. The weekend sessions gave the entire family a chance to be involved in the program and followed the families' custom of weekend get-togethers.

Year two activities were conducted at the project center. They included a half-day school program for the children during which time mothers attended home management courses, mother-child teaching activities, and evening parent meetings, held once a month. Throughout years one and two, families received medical examinations, community social services, and transportation to the project center and to their health care appointments (see Johnson, 1975 for a full description of the H-PCDC program).

Participation in the intervention was voluntary; families were recruited to join the study through personal door-to-door contact. Inclusion criteria were that the family have a one-year-old child, be Mexican American, and that mother and child were free from serious emotional or health problems. Approximately 450 families were enrolled over the five-year study period. Families were randomly assigned to the intervention or a no-treatment control condition.

The effect of the intervention on subsequent child behavior problems was evaluated using data from interviews with mothers and teachers conducted one to four years after the study period. Information about internalizing and externalizing

behaviors and physical complaints was collected in home interviews with 128 mothers when the study children were four to seven years of age. Analyses of these data revealed a significant interaction between child's sex and treatment group -- control group boys showed far more behavior problems than did intervention boys, girls, or control group girls. Control group boys were reportedly more destructive, overactive, attention-seeking, and less emotionally sensitive than children in the other groups (Johnson and Breckenridge, 1982).

Teachers also reported significant differences favoring the intervention children; however, there was no sex-by-treatment group interaction with these data. The types of behavior difficulties that distinguished the intervention and control groups were those targeted by the H-PCDC program. Specifically, teachers found children in the two groups to differ in the frequency of acting out and aggression, but not in learning difficulties or emotional withdrawal. Teachers rated control group children (boys and girls combined) as more impulsive, obstinate, restless, disruptive, and more often involved in fights. When asked about both positive and negative classroom behaviors, teachers rated intervention children as more considerate and less hostile. In addition, of the five children referred for special services due to emotional or behavioral difficulties, four had been in the control group (Johnson and Walker, 1987).

A recent follow up of program families, whose children are now in their teens, suggests that the H-PCDC intervention changed parents' beliefs about child rearing (Johnson, 1988). In addition, Johnson (1988) proposes other keys to program success. One possibility is program intensity. Participation in the full two-year program entailed hundreds of hours of parent participation and involved the entire family. Of course, not all families were able to make this commitment. Attrition was relatively high (48% in the intervention group vs. 38% in the control). Major reasons for dropping out of the progrm were that the family moved away or the mother went to work outside the home. For families who did complete the program, the successful integration of activities and presumably program values in their lives is illustrated by many years of continued community support and funding and the spontaneous emergence of alumni groups.

The results from Houston and the other preventive intervention projects discussed here are encouraging. They support the contention that community investment to change parents' knowledge and beliefs about early development can help strengthen families, and that such strengthening has major benefits for children.

CHECKPOINTS AND REFUELING STATIONS

As a result of complex social, economic, and cultural factors, family life in the U.S. is drastically different than it was just one generation ago. More families are separated from natural support networks such as relatives and neighbors. More

children are living in poverty. More mothers are in the paid labor force than ever before. And regardless of income, parents and children are spending less time together. The health and well-being of the nation's children has changed too. Compared with the 1970's, children in the 1990's are worse off in terms of poverty, personal safety, mental and physical health, school drop out, teen-age pregnancy, and violent crime (U.S. National Commission on Children, 1991).

Social adaptation by communities, workplaces, and families to the social, demographic, and economic changes of the past generation have been slow. For example, despite a surge in the number of women working outside the home, few employers have adopted family-oriented policies such as paid leave for pregnancy and childbirth, medical leave to care for ill family members, flexible work scheduling, and job sharing. Likewise, affordable, high-quality child care is difficult to find. And, even in two-working-parent homes, mothers still carry most of the responsibility for meals, household chores, and child care. Programs that intend to support parents and young children must be aware of the challenges that families face in their immediate social environments and in the larger social contexts of culture, government, the workplace, and community.

As illustrated by the intervention projects reviewed above, successful programs tend to be multi-method programs that work within an "ecological" model of human development. In the ecological perspective, individuals and environments are mutually shaping systems. Multiple social systems, or contexts, bear on human development, including the immediate and more distant cultural environment. The extent of risk or benefit experienced by an individual depends on the interplay of person and environment characteristics (Bronfenbrenner, 1979). When we think of the influences on the lives of infants and toddlers, we generally think of the immediate family. However, very young children are increasingly experiencing other caregivers and other social systems that also affect their development. Two such examples are the child care and health care systems. Health and child care professionals are in key positions to strengthen families by helping parents care for their children.

Linking Caregivers Across Multiple Social Systems

In the past two decades, the proportion of children whose mothers are in the paid labor force has climbed dramatically; from 39 percent in 1970 to 61 percent in 1990 (Center for the Study of Social Policy, 1992). Today, approximately 10.9 million children under age six, including 1.7 million babies under one year and 9.2 million toddlers and preschoolers, have mothers working outside the home (U.S. National Commission on Children, 1991). In addition, mothers and fathers are working longer hours, leaving them with even less time to be at home with their children (U.S. National Commission on Children, 1991).

Changes in maternal employment have been accompanied by rapid changes in patterns of early child care. Care provided by adults outside the family is increasingly

common. Nearly 20 million children, or about 70 percent of those with employed mothers, are cared for by an adult other than their parent, grandparent, or sibling.

Although quality child care is critical to children's health and development, this country has little regulation or monitoring of child care workers' training or program safety. Quality varies dramatically according to price, program, setting, and provider. Improving the quality of child care depends on increasing opportunities for training and education of child care workers; optimizing child-staff ratios, group size, and frequency of adult-child interaction; and minimizing the rate of staff turnover. Insuring that high-quality care is available at a price most families can afford will require increased public and private support for child care workers and for child care programs.

Research has shown that child care workers who have knowledge of basic health and development are more likely to provide safe, responsive, and supportive learning environments (Berk, 1985; Howes, 1983). In addition, because of their frequent and personal interactions with children and families, well-informed child care workers can monitor infant health and development, help parents identify signs of difficulty and delay early on, refer families to professionals for screening and evaluation and, if indicated, help parents create integrated contexts for remediation.

Building New Connections Between Families and Health Care Providers

Child health professionals are also in a prime position to alert parents and other professionals to early developmental problems. In addition to having periodic contact with families, health professionals are often less stigmatized sources of child guidance than are mental health professionals. Considering the prevalence of behavior and developmental problems in the first few years of life, it is surprising that so few parents turn to health professionals with their concerns. In a survey of English parents of preschool children, Bax and Hart (1976) report that less than two percent of visits to general practitioners were for help with behavioral or mangagement problems. Moreover, when parents did seek help -- under the guise of a medical problem -- the practitioner often failed to identify the behavioral component.

A disparity between parents' identification of problems and their tendency to seek professional services also exists in this country. Recently, nearly 1,200 parents of infants birth to age one were interviewed as part of the U.S. Department of Health and Human Services, National Health Interview Survey. About two and one-half percent indicated a delay in their infant's growth or development, yet less than half of these reported that their infant had ever received treatment or that they had received counseling for the delay (U.S. Department of Health and Human Services, National Center for Health Statistics, 1990). Missed opportunities for health care workers to provide services and support to families in need could be minimized by increasing access to primary care professionals (e.g., through the provision of "warm" lines for non-urgent care questions, more convenient office hours, the provision of language

interpreters, transportation, child care for siblings), offering more anticipatory guidance to parents at the time of well-child visits, and providing better professional training and in-service education.

Traditionally, non-emergency pediatric appointments emphasize safety, protection from disease, and physical growth. However, as Needleman's ROAR program illustrates, clinic visits can also enhance normal family functioning by teaching parents about children's intellectual and social needs. Because physical and emotional health in early childhood are so closely related, and because parents are more apt to seek a professional opinion for physical problems (e.g., a child's difficulty eating or sleeping), health care providers can help in the assessment and treatment of interactional, emotional, and intellectual problems by recognizing them before children enter the school system.

What Professionals Should Know about Emotional and Linguistic Development

In order for health and child care professionals to help families help children, they must know about children's cognitive, linguistic, social, and emotional development. Unquestionably, basic developmental information should be included in the education of all professionals, paraprofessionals, and volunteers who have regular contact with children. Training will vary according to nature of the involvement with children (e.g., the frequency of contact, tasks performed, and children's ages), but all professionals -- including social workers, teachers, and day care personnel -- should have a fundamental knowledge of normal psychosocial and intellectual development, and the factors that influence it. Part of that knowledge includes the fact that children vary in the age at which they achieve any particular milestone. Although true for some, "oh, she'll catch up" or "he'll grow out of it" is not necessarily the best nor the most comforting advice to parents. It is especially important that health care practitioners and child care professionals become aware of normal behavior and the patterns that predict delay and maladjustment. Summaries of basic observable language and emotional milestones in infancy and toddlerhood are provided in Tables 1 and 2. This information is essential for all people who work with young children.

Summary: Supporting Infants, Toddlers, and Families from Within

Unlike adults, infants and toddlers can rarely tell us "where it hurts." But their distress is visible in how they deal with their family and peers, and in their school behavior. Signs of language delay and emotional difficulty can be detected in any number of contexts, including child care settings and pediatric clinics, through a combination of careful, well-informed observations of parent-child interaction, parent report, and knowledge of the child's developmental history.

This report has emphasized community-based approaches to preventive intervention that provide comprehensive yet integrated services within a family-centered model.

Community-Based Approach. Many agencies or institutions (e.g., neighborhood schools or churches, county health departments or universities) can act as gatekeepers of social, health, and educational services to children and families. The choice has important implications regarding who is served, how they are served, and what determines program success. In a community-based model, service providers, administrators, and participating private and public institutions (such as day cares, libraries, health and social service centers, churches, and parks) work collectively under a collaborative governance. One advantage is that broad participation results in programs more in-step with the desires of the community. A second advantage is that services are more widely available because families can access programs from many different points. This can be an especially important for certain ages or segments of the population. For example, the typical lifestyle and habits of two-year-old children -- having outgrown frequent clinic trips for immunizations but still too young for Headstart -- make them a rather elusive group, and their parents are more likely to contact park, library, or child care networks than children's health centers.

Community-based designs make strategic and conceptual sense. Chaskin and Richman (1992) consider the linking of children's services to a single institution such as a school. They point out that, with community-linked services, the range of activities, resources, and events can be broader and better integrated, services and strategies are more apt to reflect the priorities of the target population, and, when communities are partners, programs can stay flexible and respond to participants' needs over time.

Family-Centered Model. Dunst and his colleagues (Dunst, Hohanson, Trivetter, and Hamby, 1991) differentiate four family-oriented models of intervention services: professional-centered, family-allied, family-focused, and family-centered. "Family-centered" practices emphasize building family competency by helping strengthen families' own formal and informal support networks. Service providers work as facilitators of this process, not as "experts." Specific service activities are determined largely by the family's needs and lifestyle and may include such concrete support as a ride to the pharmacy or help negotiating plumbing repairs with housing authorities, as well as advice on infant nutrition and toddler behavior management.

One basic assumption of a family-centered model is that families plagued by stresses such as poverty, disorganization, and family disruption have few resources left over to provide more than provisional care for their children. Therefore, efforts to help children must be broad enough to address both macro- and micro-level risks and opportunities. This comprehensive approach seems particularly effective with multi-problem families, who often lack access to resources and lack adequate coping skills. At the other end of the spectrum, the "smorgasbord" nature of family-centered programs also seems to meet the needs of relatively informed well-functioning parents who have periodic questions about their children's development and may seek specific information about child care or school placement, but do not want a full complement of services.

Babies are Everybody's Business

The desire for every child to succeed is not new. Over 30 years ago, the importance of preschool experience to academic achievement was acknowledged by the creation of Head Start. Belief in the link between infant experience and learning is not new either. Fifteen years ago, the World Health Organization reported on children's mental health and psychosocial development and advised that preventative action take the form of improving general health, enacting social welfare measures (including regulating daycare and reducing unwanted pregnancies), and increasing public awareness so that all people would know how to respond to children appropriately (WHO, 1977).

Recently, these strategies were echoed in "Heart Start," a public policy guide produced by an interdisciplinary panel of child developmentalists (**ZERO TO THREE**, 1992). According to the experts, the preconditions for learning are good health, unhurried time with family, responsive caregiving, safe and supportive environments, and special help for families in desperate need. These principles are deceptively simple. Assuring that every child has the opportunity to learn will require collaboration among community and health care agencies, families, and schools on the road to readiness.

Table 1: Observable Language Milestones and Early Warning Signs*

Average Age (Months)	Milestone	Warning Sign
3-4	Early vocalizations Listens to caregiver's voice and responds with coos and gurgles Participates in vocal volley by answering back when imitated	(3 months) does not recognize caregiver's voice
6-10	Babbles and plays with sounds (consonant + vowel combinations such as "baba", "nana") Distinguishes friendly and angry voices	
9-10	Word comprehension Responds to "no no", "where's mommy?" Intentional signaling (giving, showing, requests pick-up) Produces vocal strings similar to adult intonation patterns	
12-13	Production of first words Gestural expression more complex (requests with point and look, applauds self) Understands 50 words Will give and show upon request Attends to pictures when named	(11-12 months) No giving, showing of, or pointing to objects for caregiver
18	Vocabulary burst Uses 75 or more words Follows verbal directives (say "thank you")	(18 months) Comprehends fewer than 60 words Produces fewer than 5 words
20	Word combinations ("car go" "daddy bye-bye") Repeats adults' phrases Uses approximately 150 words	
24-36	Grammaticization (3+ word phrases, inflections such as "-ing" in running, "-ed" in played, "-s" in toys, and "-s" in mommy's) Listens to simple stories Understands 3 or more prepositions ("on", "in", "under", "behind", "in front")	(24 months) Produces fewer than 50 words Produces no 2-word combinations

* adapted from Bayley (1969); Fenson et al. (1991); and Thal and Bates (1989).

Table 2: Observable Emotional Milestones and Early Warning Signs

Average Age (Months)	Milestone	Warning Sign
4	Brightens to sights and sounds by alerting, calming, and focusing Responds to social overtures with a smile, vocalization, arm or leg movement Maintains interest in caregiver 1+ minutes Enjoys touch, cuddling, holding Calms when comforted	No response or over-reaction to social or physical stimulation Does not maintain mutual eye contact Parent reports difficulty in baby's sleep-wake pattern
8	Social turn-taking (responds to simple games such as peek-a-boo and to gestures in kind) Initiates joy and pleasure with caregivers Shows assertiveness by reaching or following Shows interest and caution toward new people	Does not show interest or pleasure in surroundings Does not show selective attachment to caregivers
12	Initiates complex interactions (roll-the-ball) Asserts self through gesture and vocalization Responds to prohibitions Recovers from distress after about 10-15 min. Behavior seems intentional (makes adults react)	Has difficulty regulating negative emotions; cannot soothe self; inconsolable
18	Is intentional; plans; understands limits Communicates feelings across a distance Asks adults for help to achieve goals Balances independence and closeness (returns to caregiver to "check-in" during play) Communicates anger through voice and gesture Recovers from anger after about 15 min.	Is overly demanding, whiny, or clingy Is sad or fearful Avoids or protests social contact
24-30	Invites others to join in play Interest in closeness is represented in words and play (asks for a "hug", cuddles doll) Assertiveness apparent in play (cars "race") Communicates anger with gestures or words Recovers from anger after 10 min.	Behavior and emotions are polarized (e.g., withdrawn, apathetic, hyperaggressive or disorganized) Is excessively clumsy or risk-seeking in play
36-42	Knows what is real and what is pretend; can distinguish objects and symbols or images Uses another's help and toys to play-act themes of nurturing, exploration, fear Follows rules Remains calm and focused for 30+ minutes Acts optimistic and confident in play and social interaction Understands consequences of behavior; negotiates to achieve goals	Lacks intimate relationships Does not show confidence, curiosity, or self-esteem Does not respond to others with empathy or compassion Behavior is impulsive, provocative, or fleeting Does not separate fantasy and reality

adapted from Barnard (1992); Greenspan (1988); and Lieberman and Pawl (1990).

REFERENCES

Achenbach, T.M. (1982). *Developmental psychopathology*. New York, NY: John Wiley and Sons.

Achenbach, T.M. and Edelbrock, C.S. (1981). Behavioral problems and competences reported by parents of normal and disturbed children aged four through sixteen. *Monographs of the Society for Research in Child Development*, **46**, Serial No. 188.

Achenbach, T.M., Howell, C.T., Quay, H.C., and Connors, C.K. (1991). National survey of problems and competencies among four to sixteen-year-olds. *Monographs of the Society for Research in Child Development*, **56**, Serial No. 225.

Ainsworth, M.D.S., Blehar, M.C., Waters, E., and Wall. (1978). *Patterns of attachment: A psychological study of the strange situation* (pp. 32-65). Hillsdale, NJ: Erlbaum.

Allen, R. and Wasserman, G.A. (1985). Origins of language delay in abused infants. *Child Abuse and Neglect*, **9**, 335-340.

Anthony, E.J. (1987). Risk, vulnerability, and resilience: An overview, and Children at high risk for psychosis growing up successfully. In E.J. Anthony and B.J. Cohler (Eds.), *The invulnerable child* (pp. 3-48 and 147-184). New York: Guilford Press.

Anthony, E.J. (1983). An overview of the effects of maternal depression in the infant and child. In H.L. Morrison (Ed.), *Children of depressed parents* (pp. 147-184). New York, NY: Guilford Press.

Arend, R., Grove, F.L., and Sroufe, L.A. (1979). Continuity of individual adaptation from infancy to kindergarten: A predictive study of ego-resiliency and curiosity in preschoolers. *Child Development*, **50**, 950-959.

Badian, N.A. (1988). The prediction of good and poor reading before kindergarten entry: A nine-year follow-up. *Journal of Learning Disabilities*, **21**, 98-103.

Barkley, R.A. (1981). Learning disabilities. In E.J. Mash and L.G. Terdal (Eds.), *Behavioral assessment of childhood disorders* (pp. 441-482). New York: Guilford.

Barnard, K.E. (1992). Personal communication.

Barnard, K.E, Bee, H.L., and Hammond, M.A. (1984). Home environment and cognitive development in a healthy, low-risk, sample: The Seattle study. In A.W. Gottfried (Ed.), *Home environment and early cognitive development* (pp. 117-149). New York, NY: Academic Press.

Barnard, K.E., Booth, C.L., Mitchell, S.K., and Telzrow, R.W. (1983). *Newborn nursing models project final report* (Grant R01-NU-00719). Washington, D.C.: Division of Nursing, Bureau of Health Manpower, Health Resources Administration, Department of Health and Human Services.

Barnard, K.E., Magyary, D., Sumner, G.A., Booth, C.L., Mitchell, S.K., and Spieker, S. (1988). Prevention of parenting alterations for women with low social support. *Psychiatry*, **51**, 248-253.

Barnard, K.E., Morisset, C., and Spieker, S. (in press). Preventive interventions: Enhancing parent-infant relationships. In C. Zeanah (Ed.), *Handbook of Infant Mental Health.* New York, NY: Guilford Press.

Barnes, S., Gutfreund, M., Satterly, D., and Wells, G. (1983). Characteristics of adult speech which predict children's language development. *Journal of Child Language*, **10**, 65-84.

Bayley, N. (1969). Bayley Scales of Infant Development: Birth to two years. San Antonio, TX: The Psychological Corp.

Bates, E., Bretherton, I., Beeghly-Smith, M., and McNew, S. (1982). Social bases of language development: A reassessment. In H.W. Reese and L.P. Lipsitt (Eds.), *Advances in Child Development and Behavior*, **16**. New York: Academic Press.

Bax, M. and Hart, H. (1976). Health needs of preschool children. *Archives of Diseases of Children*, **51**, 848-852.

Bee, H.L., Barnard, K.E., Eyres, S.J., Gray, C.A., Hammond, M.A., Spietz, A.L., Snyder, C., and Clark, B. (1982). Prediction of IQ and language skill from perinatal status, child performance, family characteristics, and mother-infant interaction. *Child Development*, **53**, 1134-1156.

Bee, H.L., Van Egren, L.F., Streissguth, A.P., Nyman, B.A., and Leckie, M.S. (1969). Social class differences in maternal teaching strategies and speech patterns. *Developmental Psychology*, **1**, 726-734.

Beitchman, J.H., Nair, R., Ferguson, M., and Patel, P.G. (1986). Prevalence of psychiatric disorders in children with speech and language disorders. *Journal of the American Academy of Child Psychiatry, 24*, 528-535.

Bernstein, B. (1960). Aspects of language and learning in the genesis of the social process. *Journal of Child Psychology and Psychiatry*, **1**, 313-324.

Berk, L. (1985). Relationships of educational attainment, child-oriented attitudes, job satisfaction, and career commitment to caregiver behavior toward children. *Child Care Quarterly*, **14**, 103-129.

Bettes, B.A. (1988). Maternal depression and motherese: Temporal and intonation features. *Child Development*, **59**, 1089-1096.

Blager, F. and Martin, H.P. (1976). Speech and language of abused children. In H.P. Martin (Ed)., *The abused child: A multidisciplinary approach to developmental issues and treatment* (pp. 83-92). Cambridge, MA: Lippincott.

Blank, M. (1975). Mastering the intangible through language. In Doris Aaronson and Robert W. Rieber (Eds.), Developmental psycholinguistics and communication disorders. *Annals of the New York Academy of Sciences*, **263**, 44-58.

Bloom, L., Hood, L., and Lightbown, P. (1974). Imitation in language development: if, when and why. *Cognitive Psychology*, **6**, 380-420.

Boyer, E.L. (1991). *Ready to learn: A mandate for the nation.* Princeton, NJ: Princeton University Press.

Bradley, R. and Caldwell, B. (1984). One hundred seventy-four children: A study of the relationship between home environment and cognitive development during the first five years. In A.W. Gottfried (Ed.), *Home environment and early cognitive development* (pp. 5-56). New York, NY: Academic Press.

Bradley, R. and Caldwell, B. (1976a). The relationship of infants' home environments to mental test performance at fifty-four months: A follow-up study. *Child Development*, **47**, 1172-1174.

Bradley, R. and Caldwell, B. (1976b). Early home environment and changes in mental test performance in children from six to thirty-six months. *Developmental Psychology*, **12**, 93-97.

Brazelton, T.B. (1992). *Touchpoints: your child's emotional and behavioral development.* Reading, MA: Addison-Wesley.

Bricker, D. and Veltman, M. (1990). Early intervention programs: Child-focused approaches. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 373- 399). Cambridge, England: Cambridge University Press.

Brim, O.G., Jr., and Kagan, J. (1980). Constancy and change: A view of the issues. In O.G. Brim, Jr. and J. Kagan (Eds.), *Constancy and change in human development* (pp. 1-25). Cambridge, MA: Harvard University Press.

Bronfenbrenner, U. (1986). The ecology of the family as a context for human development. *Developmental Psychology*, **22**, 723-742.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Brooks-Gunn, J. and Matthews, W.S. (1979). *He and she: How children develop their sex role identity*. Englewood Cliffs, N.J.: Prentice Hall.

Bronson, M.B., Pierson, D.E., and Tivnan, T. (1984). The effects of early education on children's competence in elementary school. *Evaluation Review*, **8**, 615-629.

Bruner, J. (1974). The organization of early skilled action. In M.P.M. Richards (Ed.), *The integration of a child into a social world*. Cambridge, England: Cambridge, University Press.

Bruner, J. (1973). The organization of early skilled action. *Child Development*, **44**, 1-11.

Cassidy, J., Marvin, R., with the Attachment Working Group of the John D. and Catherine T. MacArthur Network on the Transition from Infancy to Early Childhood (1992). *Attachment organization in three- and four-year-olds: Coding guidelines*. Unpublished coding manual.

Center for the Study of Social Policy (1992). *Kids Count Data Book*. The Annie E. Casey Foundation Center for the Study of Social Policy, Washington, D.C.

Chaskin, R.J. and Richman, H.A. (1992). Concerns about school-linked services: Institution-based versus community-based models. In R.E. Behrman (Ed.), *The future of children*, **2**, 107-117. Los Altos, CA: Center for the Future of Children, the David and Lucile Packard Foundation.

Cherry, L. and Lewis, M. (1976). Mothers and two-year-olds: A study of sex-differentiated aspects of verbal interaction. *Developmental Psychology*, **12**, 278-282.

Chess, S. and Rosenburg, M. (1974). Clinical differentiation among children with initial language complaints. *Journal of Autism and Childhood Schizophrenia*, **4**, 99-109.

Christodoulou, G.N. (1991). Prevention of psychopathology with early interventions. *Psychotherapy and Psychosomatics*, **55**, 201-207.

Cicchetti, D. (1984). The emergence of developmental psychopathology. *Child Development*, **55**, 1-7.

Cicchetti, D. and Beeghley, B. (1987). Symbolic development in maltreated youngsters: An organizational perspective. In D. Cicchetti and M. Beeghley (Eds.), Symbolic development in young children. *New Directions for Child Development*, no. 36. San Fransisco, CA: Jossey-Bass.

Cicchetti, D. and Schneider-Rosen, K. (1984). Toward a transactional model of childhood depression. In D. Cicchetti and K. Schneider-Rosen (Eds.), Childhood depression. *New Directions for Child Development*, No. 26, pp. 5-27. San Fransisco: Jossey-Bass.

Cicchetti, D. and Toth, S.L. (1991). The making of a developmental psychopathologist. In J. Cantor, C. Spiker, and L. Lipsitt (eds.), *Child behavior and development: Training for diversity* (pp. 34-72). Norwood, NJ: Ablex.

Cicchetti, D. and Toth, S.L. (1987). The application of a transactional risk model to intervention with multi-risk maltreating families. *Zero to Three: Bulletin of the National Center for Clinical Infant Programs*, **7**, 1-8.

Clarke-Stewart, K.A. (1973). Interactions between mothers and their young children: Characteristics and consequences. *Monographs of the Society for Research in Child Development*, **38**, (6-7, Serial No. 153).

Clarke-Stewart, K.A., VanderStoep, L.P., and Killian, G.A. (1979). Analysis and replication of mother-child relations at two years of age. *Child Development*, **50**, 777-793.

Coghill, S.R., Caplan, H.L., Alexander, H., Robson, K.M., Kumar, R (1986). Impact of maternal postnatal depression on the cognitive development of young children. *British Medical Journal*, **292**, 1165-1167.

Cohen, N.J., McDonald, J., and Davine, M. (1989). Language characteristics of psychiatrically disturbed children with previously undetected language disorders. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Kansas City.

Cohler, B.J., and Musick, J.S. (1983). Psychopathology of parenthood: Implications for mental health of children. *Infant Mental Health Journal*, **4**, 140-164.

Cohn, J.F., Matias, R., Tronick, E.Z., Connell, D., and Lyons-Ruth, K. (1986). Face-to-face interactions of depressed mothers and their infants. In E.Z. Tronick and T. Field, (Eds.), Maternal depression and infant disturbance. *New Directions for Child Development*, **34**, San Francisco, CA: Jossey-Bass.

Cohn, J.F. and Tronick, E. (1989). Specificity of infants' response to mothers' affective behavior. *Journal of the American Academy of Child and Adolescent Psychiatry*, **28**, 242-248.

Colleta, N. (1979). Support systems after divorce. *Journal of Marriage and the Family*, **41**, 837-846.

Cox, A.D., Puckering, C., Pound, A., and Mills, M. (1987). The impact of maternal depression in young children. *Journal of Child Psychology and Psychiatry*, **28**, 917-928.

Crockenberg, S. (1985). Professional support and care of infants by adolescent mothers in England and the United States. *Journal of Pediatric Psychology*, **10**, 413-428.

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

Cross, T.G. (1984). Habilitating the language-impaired child; Ideas from studies of parent-child interaction. *Topics in Language Disorders*, September, 1-13.

Crnic, K., Greenberg, M., Ragozin, A., Robinson, N., and Basham, R. (1983). Effects of stress and social support on mothers of premature and full-term infants. *Child Development*, **54**, 209-217.

Demetras, M., Post, K., and Snow, C.E. (1986). Negative feedback to first language learners. *Journal of Child Language*, **13**, 275-292.

Downey, G. and Coyne, J.C. (1990). Children of depressed parents: An integrative review. *Psychological Bulletin*, **108**, 50-76.

Dunst, C.J., Johanson, C., Trivette, C.M., and Hamby, D. (1991). Family-oriented early intervention policies and practices: Family-centered or not? *Exceptional Children*, **58**, 115-126.

Dunst, C.J., Trivette, C.M., and Cross, A.H. (1986). Mediating influences of social support: Personal, family, and child outcomes. *American Journal of Mental Deficiency*, **90**, 403-417.

Dunst, C.J., Vance, S.D., and Cooper, C.S. (1986). A social systems perspective of adolescent pregnancy: Determinants of parent and parent-child behavior. *Infant Mental Health Journal*, **7**, 34-80.

Earls, F.J. (1983). Epidemiology of behavior problems. In S.B. Guze, F.J. Earls, and J.E. Barrett. (Eds.), *Childhood psychopathology and development* (pp. 1-15). New York, NY: Raven Press.

Earls, F. (1982). Application of DSM-III in an epidemiological study of preschool children. *American Journal of Psychiatry*, **139**, 242-243.

Earls, F. (1980). The prevalence of behavior problems in three year old children: A cross-national replication. *Archives of General Psychiatry*, **37**, 1153-1157.

Earls, F., Beardslee, W., and Garrison, W. (1987). Correlates and predictors of competence in young children. In E.J. Anthony and B.J. Cohler (Eds.), *The invulnerable child* (pp. 70-83). NY: Guilford Press.

Egeland, B. and Sroufe, A. (1981). Attachment and early maltreatment. *Child Development*, **52**, 44-52.

Elardo, R., Bradley, R., and Caldwell, B.M. (1975). The relation of infants' home environments to mental test performance from six to thirty-six months: A longitudinal analysis. *Child Development*, **46**, 71-76.

Elder, G.H., Jr. (1979). Historical change in life patterns and personality. In P.B. Baltes and O.G. Brim, Jr. (Eds.), *Life-span development and behavior*, **2** (pp. 118-159), New York, NY: Academic Press.

Elder, G.H., Jr. (1974). *Children of the great depression.* Chicago, IL: Chicago University Press.

Elder, G.H., Jr., Caspi, A., and Downey, G. (1986). Problem behavior and family relationships: A multigenerational analysis. In A.B. Sorensen, F.E. Weinert, and L.R. Sherrod (Eds.), *Human development and the life course: Multidisciplinary perspectives* (pp. 293-340), Hillsdale, NJ: Erlbaum.

Eme, R, F. (1979). Sex differences in childhood psychopathology: A review. *Psychological Bulletin*, **86**, 574-595.

Epstein, J.N., Smith, M., Glenn, S.R., Whitehurst, G.J., and Arnold, D.S. (1992). Expressive language abilities after a shared picture book reading intervention in daycare and home. Paper presented at the Eighth International Conference on Infant Studies, Miami.

Farran, D.C. (1990). Effects of intervention with disadvantaged and disabled children: A decade review. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 501-539), Cambridge University Press.

Farran, D. (1982). Mother-child interaction, language development, and the school performance of poverty children. In L. Feagans and D.C. Farran (Eds.), *The language of children reared in poverty* (pp. 19-52). New York, NY: Academic Press.

Farran, D., and Ramey, C. (1980). Social class differences in dyadic involvement during infancy. *Child Development*, **51**, 254-257.

Fenson, L., Dale, P.S., Reznick, J.S., Thal, D., Bates, E., Hartung, J.P., Pethick, S., and Reilly, J.S. (1991). *Technical manual for the MacArthur Communicative Development Inventories.* San Diego State University.

Field, T., Healey, B., Goldstein, S., Perry, S., Bendell, D., Schanberg, S., Zimmerman, E.A., and Kuhn, C. (1988). Infants of depressed mothers show "depressed" behavior even with nondepressed adults. *Child Development*, **59**, 1569-1579.

Field, T. (1987). Affective and interactive disturbances in infants. In J.D. Osofsky (Ed.), *Handbook of infant development*, second edition (pp. 972-1005). New York, NY: Wiley.

Field, T. (1984). Early interactions between infants and their postpartum depressed mothers. *Infant Behavior and Development*, **7**, 517-522.

Fisher, L., Kokes, R.F., Cole, R.E., Perkins, P.M., and Wynne, L.C. (1987). In E.J. Anthony and B.J. Cohler (Eds.), *The invulnerable child* (pp. 211-228). New York: Guilford Press.

Flemming, A., Ruble, D., Flett, G., and Shaul, D. (1988). Postpartum adjustment in first-time mothers: Relations between mood, maternal attitudes, and mother-infant interactions. *Developmental Psychology*, **24**, 71-81.

Folger, J. and Chapman, R. (1978). A pragmatic analysis of spontaneous imitations. *Journal of Child Language*, **5**, 7-24.

Gaensbauer, T.J., Harmon, R.J., Cytryn, L., and McKnew, D.H. (1984). Social and affective development in infants with a manic-depressive parent. *American Journal of Psychiatry*, **141**, 223-229.

Garmezy, N. (1983). Stressors of childhood. In N. Garmezy and M. Rutter (Eds.), *Stress, coping, and development in children* (pp. 43-84). New York, NY: McGraw Hill.

Garmezy, N., Masten, A.S., and Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development*, **55**, 97-111.

Geschwind, N. and Galaburda, A.M. (1985). Cerebral lateralization: Biological mechanisms, associations, and pathology: A hypothesis and program for research. *Archives of Neurology*, **42**(I), 428-459; (II), 521-552, (III), 634-654.

Golden, M., and Birns, B. (1968). Social class and cognitive development in infancy. *Merrill-Palmer Quarterly*, **14**, 139-149.

Golden, M., Birns, B., Bridger, W., and Moss, A. (1971). Social-class differentiation in cognitive development among black school children. *Child Development*, **42**, 37-45.

Gotlib, I.H., Whiffen, V.E., Mount, J.H., Milne, K., and Cordy, N.I. (1989). Prevalence rates and demographic characteristics associated with depression in pregnancy and the postpartum. *Journal of Consulting and Clinical Psychology*, **57**, 269-274.

Gottfried, A.W. and Gottfried, A.E. (1984). Home environment and cognitive development in young children in middle-class families. In A.W. Gottfried (Ed.), *Home environment and early cognitive development* (pp. 57-115). New York, NY: Academic Press.

Gould, M., Wunsch-Hirzig, R., and Dohrenwend, B.P. (1981). Estimating the prevalence of childhood psychopathology. *Journal of the American Academy of Child Psychiatry*, **20**, 462-476.

Greenspan, S.I. (1988). Emotional and behavioral milestones in infancy and early childhood. In M.I. Gottlieb and J.E. Williams (Eds.), *Developmental-behavioral disorders*, vol. 1 (pp. 153-177). New York, NY: Plenum.

Greenspan, S.I. (1986). Psychopathology and preventive intervention. In D.C. Farran and J.D. McKinney (Eds.), *Risk in intellectual and psychosocial development*, (pp. 129-167). Orlando, FL: Academic Press.

Greenspan, S.I. (1982). Developmental morbidity in infants in multi-factor families: Clinical perspectives. *Public Health Reports*, **97**, 16-23.

Greenspan, S.I. and White, K.R. (1985). The efficacy of preventive intervention: A glass half full? *Zero to Three: Bulletin of the National Center for Clinical Infant Programs*, **5**, 1-5.

Grissom, J.B and Shepard, L.A. (1989). Repeating and dropping out of school. In L.A. Shepard *Flunking grades: Research and policies on retention* (pp. 34-63). Philadelphia, PA: Falmer Press.

Halpern, R. (1990). Community-based interventions. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 469-498). Cambridge, England: Cambridge University Press.

Halpern, R. (1986). Home-based early intervention: Dimensions of current practice. *Child Welfare*, **65**, 387-398.

Helfer, R.E. (1987). The perinatal period, a window of opportunity for enhancing parent-infant communication: An approach to prevention. *Child Abuse and Neglect*, **11**, 565-579.

Hess, R.D., and Shipman, V. (1965). Early experience and the socialization of cognitive modes in children. *Child Development*, **36**, 869-886.

Hetherington, E.M., Cox, M., and Cox, R. (1979). Play and social interaction in children following divorce. *Journal of Social Issues*, **35**, 26-49.

Hetherington, E.M, Cox, M., and Cox, R. (1982). Effects of divorce on parents and children. In M. Lamb (Ed.), *Nontraditional families*. Hillsdale, NJ: Erlbaum.

Hoff-Ginsberg, E. (1989). Effects of social class and interactive setting on maternal speech. Paper presented at the biennial meeting of the Society for Research in Child Development, Kansas City, Missouri, April 1989.

Howes, C. (1983). Caregiver behavior and conditions of caregiving. *Journal of Applied Developmental Psychology*, **4**, 99-107.

Institute of Medicine (1989). *Report of a study: Research on children and adolescents with mental, behavioral, and developmental disorders*. (Research Report No. IOM-89-07). Washington, DC: National Academy Press.

Jenkins, S., Bax, M., and Hart, H. (1980). Behaviour problems in pre-school children. *Journal of Child Psychology and Psychiatry*, **21**, 5-17.

Johnson, D.L. (1988). Primary prevention of behavior problems in young children: The Houston Parent-Child Development Center. In R.H. Price, E.L. Cowen, R.P. Lorion, and J. Ramos-McKay (Eds.), *Fourteen ounces of prevention* (pp. 44-52). Washington, D.C.: American Psychological Association.

Johnson, D.L. (1975). The development of a program for parent-child interaction among Mexican-Americans in Texas. In B.Z. Friedlander, G.M. Steritt, and G.E. Kirk (Eds.), *Exceptional infant*, vol. 3. New York, NY: Bruner/Mazel.

Johnson, D.L. and Breckenridge, J.N. (1982). The Houston Parent-Child Development Center and the primary prevention of behavior problems in young children. *American Journal of Community Psychology*, **10**, 305-316.

Johnson, D.L. and Walker, T. (1987). Primary prevention of behavior problems in Mexican-American children. *American Journal of Community Psychology*, **15**, 375-385.

Kagan, J. (1980). Perspectives on continuity. In O.G. Brim, Jr. and J. Kagan (Eds.), *Constancy and change in human development* (pp. 26-74). Cambridge, MA: Harvard University Press.

Kazdin, A.E. (1990). Prevention of conduct disorder. Paper prepared for the National Conference on Prevention Research, National Institute of Mental Health, Bethesda, Maryland.

Kazdin, A.E. (1989). Developmental psychopathology: Current research, issues, and directions. *American Psychologist*, **44**, 180-187.

Kazdin, A.E., Moser, J., Colbus, D., and Bell, R. (1985). Depressive symptoms among physically abused and psychiatrically disturbed children. *Journal of Abnormal Psychology*, **94**, 298-307.

Lenneberg, E.H., Rebelsky, F.G., and Nichols, I.A. (1965). The vocalizations of infants born to hearing and deaf parents. *Human Development*, **8**, 23-27.

Lewis, M., Feiring, C., McGuffog, C., and Jaskir, J. (1984). Predicting pychopathology in six-year-olds from early social relations. *Child Development*, **55**, 123-136.

Lieberman, A. F., and Pawl, J.H. (1990). Disorders of attachment in the second year: A clinical developmental perspective. In M. Greenberg, D. Cicchetti, and E.M. Cummings, (Eds.), *Attachment in the preschool years: Theory, research, and intervention*. Chicago, IL: University of Chicago Press.

Livingood, A.B., Daen, P., and Smith B.D. (1983). The depressed mother as a source of stimulation for her infant. *Journal of Clinical Psychology*, **39**, 369-375.

Lyons-Ruth, R.K., Zoll, D., Connell, D., and Grunebaum, H.U. (1986). The depressed mother and her one-year-old infant: Environment, interaction, attachment, and infant development. In E.Z. Tronick and T. Field (Eds.), Maternal depression and infant disturbance. *New Directions for Child Development*, **34**. San Fransisco: Jossey-Bass.

Maccoby, E.E. (1980). Child-rearing practices and their effects. In *Social development: Psychological growth and the parent-child relationship* (pp. 367-411). San Diego: Harcourt Brace Jovanovich.

Matas, L., Arend, R.A., and Sroufe, L.A. (1978). Continuity of adaptation in the second year: The relationship between quality of attachment and later competence. *Child Development*, **49**, 547-556.

Mazer, M. (1972). Characteristics of multi-problem families: A study in psychosocial epidemiology. *American Journal of Orthopsychiatry*, **44**, 720-777.

McCall, R.B., Appelbaum, M.J., and Hogarty, P.S. (1973). Developmental changes in mental performance. *Monographs of the Society for Research in Child Development*, **38**, Serial No. 150.

McCardle, P. and Wilson, B.E. (1990). Hormonal influence on language development in physically advanced children. *Brain and Language*, **38**, 410-423.

Meisels, S.J. and Wasik, B. A. (1990). Who should be served? Identifying children in need of early intervention. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 605-632). Cambridge, England: Cambridge University Press.

Messer, D.J. (1978). The integration of mothers' referential speech with joint play. *Child Development*, **49**, 781-787.

Mills, M., Puckering, C., Pound, A., Cox, and A.D. (1984). What is it about depressed mothers that influences their child's functioning? In J.E. Stevenson (Ed.), Recent research in developmental psychopathology. *Journal of Child Psychology and Psychiatry*, suppl. 4. Oxford, England: Pergamon Press.

Moerk, E. (1974). Changes in verbal child-mother interactions with increasing language skills of the child. *Journal of Psycholinguistic Research*, **3**, 1974.

Moerk, E.L. (1976). Processes of language teaching and training in the interactions of mother-child dyads. *Child Development*, **47**, 1064-1078.

Morisset, C.E. (1992). SPARK: Seattle's Parents Are Reading to Kids! Paper submitted for presentation at the Biennial Meeting of the Society for Research in Child Development, New Orleans.

Morisset, C.E. (1991a). Environmental influences on language development of high social-risk toddlers. (Doctoral Dissertation, University of Washington). Ann Arbor, MI: University Microfilms International (No. 9124939).

Morisset, C.E. (1991b). Toddler's language development: Sex differences in response to social risk. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Seattle.

Morisset, C.E., Barnard, K.E., Greenberg, M.T., Booth, C.L., and Spieker, S.J. (1990). Environmental influences on early language development: The context of social risk. *Development and Psychopathology*, **2**, 127-149.

Murphy, C.M. (1978). Pointing in the context of shared activity. *Child Development*, **49**, 371-380.

Nadelman, L. and Begun, A. (1982). The effect of the newborn on the older sibling: Mothers' questionnaires. In M.E. Lamb and B. Sutton-Smith (Eds.), *Sibling relationships: Their nature and significance across the lifespan.* Hillsdale, NJ: Erlbaum.

Needleman, R., Fried, L.E., Morley, D.S., Taylor, S., and Zuckerman, B. (1991). Clinic-based intervention to promote literacy. *American Journal of Diseases of Childhood*, **145**, 881-884.

Needleman, R. and Zuckerman, B. (1992). Fight illiteracy: Prescribe a book! *Contemporary Pediatrics*, February, 41-60.

Nelson, K. (1973). Structure and strategy in learning to talk. *Monographs of the Society for Research in Child Development*, **38**, (1-2, Serial No. 149).

Newport, E.L., Gleitman, H., and Gleitman, L.R. (1977). Mother, I'd rather do it myself: Some effects and non-effects of maternal speech style. In C.E. Snow and C.A. Ferguson (Eds.), *Talking to children: Language input and acquisition.* Cambridge: C.U.P.

Ninio, A. (1980a). Ostensive definition in vocabulary teaching. *Journal of Child Language*, **7**, 565-573.

Ninio, A. (1980b). Picture-book reading in mother-infant dyads belonging to two subgroups in Israel. *Child Development*, **51**, 587-590.

Ninio, A., and Bruner, J. (1978). The achievements and antecedents of labeling. *Journal of Child Language*, **5**, 1-15.

Olds, D.L. (1988). The Prenatal/Early Infancy Project. In R.H. Price, E.L. Cowen, R.P. Lorion, and J. Ramos-McKay (Eds.), *Fourteen ounces of prevention* (pp. 9-23). Washington, D.C.: American Psychological Association.

Olds, D.L., Henderson, C.R., Chamberlin, R., and Tatelbaum, R. (1986). Preventing child abuse and neglect: A randomized trial of nurse home visitation. *Pediatrics*, **78**, 65-78.

Olds, D.L., Henderson, C.R., Tatelbaum, R., and Chamberlin, R. (1986). Improving the delivery of prenatal care and outcomes of pregnancy: A randomized trial of nurse home visitation. *Pediatrics*, 77, 16-28.

Olds, D.L., and Kitzman, H. (1990). Can home visitation improve the health of women and children at environmental risk? *Pediatrics*, **68**, 108-115.

Olim, E.G. (1970). Maternal language styles and cognitive development of young children. In F. Williams (Ed.), *Language and poverty* (pp. 212-228). Chicago: Markham Publ.

Papousek, H., and Papousek, M, (1992). Beyond emotional bonding: The role of preverbal communication in mental growth and health. *Infant Mental Health Journal*, **13**, 43-53.

Pierson, D.E. (1988). The Brookline Early Education Project. In R.H. Price, E.L. Cowen, R.P. Lorion, and J. Ramos-McKay (Eds.), *Fourteen ounces of prevention* (pp. 24-31). Washington, DC.: American Psychological Association.

Pierson, D.E., Bronson, M.B., Dromey, E., Swartz, J.P., Tivnan, T., and Walker, D. (1983). The impact of early education measured by classroom observations and teacher ratings of children in kindergarten. *Evaluation Review*, **7**, 191-216.

Provence, S. (1986). On the efficacy of early intervention programs, *Journal of Developmental and Behavioral Pediatrics*, **6**, 363-366.

Radke-Yarrow, M., Belmont, B., Nottlemann, E., and Bottomly, L. (1990). Young children's self-conceptions: Origins in the natural discourse of depressed mothers and their children. In D. Cicchetti and M. Beeghley (Eds.), *The self in transition: Infancy to Childhood* (pp. 345-361). Chicago, IL: University of Chicago Press.

Ramey, C.T., Farran, D.C., and Campbell, F.A. (1979). Predicting IQ from mother-infant interaction. *Child Development*, **50**, 804-814.

Ramey, C.T., and Finklestein, N.W. (1981). Psychosocial mental retardation: A biological and social coalescence. In M. Begab (Ed.), *Psychosocial influences and retarded performance: Strategies for improving social competence*, **1**, Baltimore, MD.: University Park Press.

Ramey, C.T. and Gowen, J.W. (1980). Children at risk: Identification and intervention. *Children Today*, November-December, 12-16.

Ramey, C.T. and MacPhee, D. (1986). Developmental retardation: A systems theory prespective on risk and preventive intervention. In D.C. Farran and J.D. McKinney (Eds.), *Risk in intellectual and psychosocial development* (pp. 61-81). Orlando, FL: Academic Press.

Rapoport, J.L, and Ismond, D. R. (1990). *DSM-III-R Training guide for diagnosis of childhood disorders*. New York, NY: Brunner/Mazel.

Rees, W.D. and Lutkins, S.G. (1971). Parental depression before and after childbirth. *Journal of the Royal College of General Practioners*, **21**, 20-31.

Richman, N. (1976). Depression in mothers of preschool children. *Journal of Child Psychology and Psychiatry*, **17**, 58-75.

Robbins, L.E. (1986). Changes in conduct disorder over time. In D.C. Farran and J.D. McKinney (Eds.), *Risk in intellectual and psychosocial development* (pp. 227-259). Orlando, FL: Academic Press.

Rolf, J., Masten, A., Cicchetti, D., Nuechterlein, and Weintraub, S. (1990). *Risk and protective factors in the development of psychopathology*. New York: Cambridge University Press.

Rutter, M. (1985a). Resilience in the face of adversity: Protective factors and resistance to psychiatric disturbance. *British Journal of Psychiatry*, **147**, 598-611.

Rutter, M. (1985b). Family and school influences on cognitive development. *Journal of Child Psychology and Psychiatry*, **26**, 683-704.

Rutter, M. (1985c). Family and school influences on behavioral development. *Journal of Child Psychology and Psychiatry*, **26**, 349-368.

Rutter, M. (1984a). Psychopathology and development: I. Childhood antecedents of adult psychiatric disorder. *Australian and New Zealand Journal of Psychiatry*, **18**, 225-234.

Rutter, M. (1984b). Psychopathology and development: II. Childhood experiences and personality development. *Australian and New Zealand Journal of Psychiatry*, **18**, 314-327.

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M.W. Kent and J.L. Rolf (Eds.), *Primary prevention of psychopathology: Social competence in children*, **3** (pp. 49-74). Hanover, N.H.: University Press of New England.

Rutter, M. (1970). Sex differences in children's response to family stress. In E.J. Anthony and C.M. Koupernik (Eds.), *The child and his family*. New York, NY: John Wiley.

Rutter, M., Cox, A., Tupling, C., Berger, M. and Yule, W. (1975a). Attainment and adjustment in two geographical areas: I. The prevalence of psychiatric disorder. *British Journal of Psychiatry*, **126**, 493-509.

Rutter, M. and Madge, N. (1976). *Studies in Deprivation and Disadvantage: Cycles of disadvantage*, **1**, (pp. 114, and 193-223). Heinemann: London.

Rutter, M., Maughan, B., Mortimore, P., Ouston, J. and Smith, A. (1979). *Fifteen thousand hours: Secondary schools and their effect on children*. Cambridge, MA: Harvard University Press.

Rutter, M., Yule, B., Quinton, D., Rowlands, O., Yule, W., and Berger, M. (1975b) Attainment and adjustment in two geographical areas: III: Some factors accounting for area differences. *British Journal of Psychiatry*, **123**, 520-533.

Sameroff, A.J. (1986). Environmental context of child development. *Journal of Pediatrics*, **109**, 192-200.

Sameroff, A.J., and Chandler, M.J. (1975). Reproductive risk and the continuum of caretaking casualty. In F.D. Howrowitz, M. Hetherington, S. Scarr-Salapatek, & G. Siegel (Eds.), *Review of child development research* (Vol. 4, 187-244). Chicago: University of Chicago Press.

Sameroff, A.J., and Seifer, R. (1983). Familial risk and child competence. *Child Development*, **54**, 1254-1268.

Sameroff, A., Seifer, R., Barocas, R., Zax, M., and Greenspan, S. (1987). Intelligence quotient scores of four-year old children: Social-environmental risk factors. *Pediatrics*, **79**, 343-350.

Sameroff, A., Seifer, R., and Zax, M. (1982). Early development of children at risk for emotional disorder. *Monographs of the Society for Research in Child Development*, 47, (7, Serial No. 199).

Sameroff, A., Seifer, R., Zax, M., and Barocas, R. (1987). Early indicators of developmental risk: Rochester longitudinal study. *Schizophrenia Bulletin*, **13**, 383-394.

Schacter, F.F. (1979). *Everyday mother talk to toddlers*. New York, NY: Academic Press.

Schorr, L.B. (1988). *Within our reach: Breaking the cycle of disadvantage* (pp. 140-178). New York, NY: Bantam.

Schwartz, M.G., Wunsch-Hitzig, R., and Dohrenwend, B. (1981). Estimating the prevalence of childhood psychopathology. *Journal of the American Academy of Child Psychiatry*, **20**, 462-476.

Seifer, R., and Sameroff, A.J. (1987). Multiple determinants of risk and invulnerability. In E.J. Anthony and B.J. Cohler (Eds.), *The invulnerable child* (pp. 51-69). New York: Guilford.

Seitz, M., and Stewart, C. (1975). Imitations and expansions: Some developmental aspects of mother-child communication. *Developmental Psychology*, **11**, 763-769.

Seitz, V. and Provence, S. (1990). Caregiver-focused models of early intervention. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 400-427). Cambridge, England: Cambridge University Press.

Seitz, V., Rosenblaum, L.K., and Apfel, N.H. (1985). Effects of family support intervention: A ten-year follow-up. *Child Development*, **56**, 376-391.

Shepard, L.A. (1989). A review of research on kindergarten retention. In L.A. Shepard *Flunking grades: Research and policies on retention* (pp. 64-78). Philadelphia, PA: Falmer Press.

Silva, P.A. (1988). Epidemiology, longitudinal course and some associated factors: An update. In W. Yule and M. Rutter (Eds.), *Language development and disorders* (pp. 1-15). Oxford: MacKeith Press.

Silva, P.A. (1981). The predictive validity of a simple two item developmental screening test for three year olds. *New Zealand Medical Journal*, **93**, 39-41.

Silva, P.A. and Williams, S.M. (1983). Developmental language delay from three to seven years and its significance for low intelligence and reading difficulties at age seven. *Developmental Medicine and Child Neurology*, **25**, 783-793.

Simeonsson, R.J. and Bailey, D.B., Jr. (1990). Family dimensions in early intervention. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 428- 444). Cambridge, England: Cambridge University Press.

Snow, C.E. (1989). Understanding social interaction and language development: Sentences are not enough. In M. Bornstein and J. Bruner, (Eds.), *Interaction in human development.*

Snow, C.E., Arlman-Rupp, A., Hassing, Y., Jobse, J., Joosten, J., and Vorster, J. (1976). Mothers' speech in three social classes. *Journal of Psycholinguistic Research*, **5**, 1-20.

Snow, C.E., Dubber, C., and deBlauw, A. (1982). Routines in mother-child interaction. In L. Feagans and D.C. Farran (Eds.), *The language of children reared in poverty* (pp. 53-74). New York: Academic Press.

Snow, C.E. and Goldfield, B.A. (1983). Turn the page please: Situation-specific language acquisition. *Journal of Child Language*, **10**, 551-569.

Snow, C.E., Midkiff-Borunda, S., Small, A., and Proctor, A. (1984). Therapy as social interaction: Analyzing the contexts for language remediation. *Topics in Language Disorders*, September, 72-84.

Snow, C.E. and Ninio, A. (1986). The contracts of literacy: What children learn from learning to read books. In W.H. Teale and E. Sulzby (Eds.), *Emergent literacy: writing and reading* (pp. 116-138). Norwood, N.J.: Ablex.

Sroufe, L.A. and Rutter, M. (1984). The domain of developmental psychopathology. *Child Development*, **55**, 17-29.

Staz, P., and Zaide, J. (1983). Sex differences: Clues or myths on genetic aspects of speech disorders. In C.L. Ludlow and J.A. Cooper (Eds.), *Genetic aspects of language disorders*. New York, NY: Academic Press.

Stein, A., Gath, D.H., Bucher, J., and Bond, A. (1991). The relationship between post-natal depression and mother-child interaction. *British Journal of Psychiatry*, **158**, 46-52.

Stevenson, J., and Richman, N. (1976). The prevalence of language delay in a population of three year old children and its association with general retardation. *Developmental Medicine and Child Neurology*, **18**, 431-441.

Stott, F.M., Musick, J.S., Clark, R., and Cohler, B.J. (1983). Developmental patterns in the infants and young children of mentally ill mothers. *Infant Mental Health Journal*, **4**, 217-235.

Tallal, P., Dukette, D., and Curtiss, S. (1989). Behavioral/emotional profiles of preschool language-impaired children. *Development and Psychopathology*, **1**, 51-67.

Thal, D. and Bates, E. (1989). Language and communication in early childhood. *Pediatric Annals*, **18**, 299-305.

Tomasello, M., and Farrar, M.J. (1986). Joint attention and early language. *Child Development*, **57**, 1454-1463.

Tomasello, M., and Todd, J. (1983). Joint attention and lexical acquisition style. *First Language*, **4**, 197-212.

Tramontana, M.G., Hooper, S.R., and Selzer, S.C. (1988). Research on the preschool prediction of later academic achievement: A review. *Developmental Review*, **8**, 89-146.

Tronick, E.A. (1981). Infant communicative intent: The infant's reference to social interaction. In R.E. Stark (Ed.), *Language behavior in infancy and early childhood*, (pp. 5-16). New York, NY: Elsevier.

Tronick, E.A., Cohn, J.F., and Shea, E. (1986). The transfer of affect between mother and infant. In M. Yogman and T.B. Brazelton (Eds.), *Affective development in infancy* (pp. 11-25). Norwood, N.J.: Ablex.

Tulkin, S.R., and Cohler, B.J. (1973). Childrearing attitudes and mother-child interaction in the first year of life. *Merrill-Palmer Quarterly*, **19**, 95-106.

Tulkin, S.R., and Kagan, J. (1972). Mother-child interaction in the first year of life. *Child Development*, **43**, 31-41.

U.S. Congress, Office of Technology Assessment (1986). *Children's mental health: Problems and services*. OTA-BP-H-33. Washington, DC: US Government Printing Office.

U.S. Dept. of Health and Human Services, National Center for Health Statistics (1990). Data from the NATIONAL HEALTH INTERVIEW SURVEY 1988, CHILD HEALTH SUPPLEMENT. Distributed by Ann Arbor, MI: Inter-university Consortium for Political and Social Research, 1990. Please note: neither the collector of the original data nor the Consortium bears any responsibility for the analysis or interpretations presented in here.

U.S. National Commission on Children (1991). *Beyond rhetoric: A new American agenda for children and families*. Final report of the National Commission on Children, Washington, D.C.

Valdez-Menchaca, M.C. and Whitehurst, G.J. (1991). Accelerating language development through picture book reading: A systematic extension to day-care. Unpublished manuscript.

Vaughn, B., Egeland, B., Sroufe, L.A., and Waters, E. (1979). Individual differences in infant-mother attachment at twelve and eighteen months: Stability and change in families under stress. *Child Development*, **50**, 971-975.

Waters, E., Wippman, J., and Sroufe, L.A. (1979). Attachment, positive affect, and competence in the peer group: Two studies in construct validation. *Child Development*, **50**, 821-829.

Webster-Stratton, C. and Eyberg, S.M. (1982). Child temperament: Relationship with child behavior problems and parent-child interaction. *Journal of Clinical Child Psychology*, **11**, 123-129.

Weiss. R.S. (1979). Growing up a little faster: The experience of growing up in a single-parent household. *Journal of Social Issues*, **35**, 97-111.

Weissman, M., Leaf., P., and Bruce, M.L. (1987). Single parent women. *Social Psychiatry*, **22**, 29-36.

Wells, G. (1990). Talk about text: Where literacy is learned and taught. *Curriculum Inquiry*, **20**, 370-405.

Wells, G. (1985). *Language development in the preschool years* (p. 123). New York, NY: Cambridge University Press.

Wells, G. (1980). Apprenticeship in meaning. In K.E. Nelson (Ed.), *Children's language*, vol. 2 (pp. 45-126). New York, NY: Wiley.

Wells, G., and Gutfreund, M. (1987). The conversational requirements for language learning. In W. Yule and M. Rutter (Eds.), *Language development and disorders* (pp. 90-102). Oxford: MacKeith Press.

Werner, E.E. (1990). Protective factors and individual resilience. In S.J. Meisels and J.P. Shonkoff (Eds.), *Handbook of early childhood intervention* (pp. 97-116). Cambridge, England: Cambridge University Press.

Werner, E.E. (1986). A longitudinal study of perinatal risk. In D.C. Farran and J.D. McKinney (Eds.), *Risk in intellectual and social development* (pp. 3-27). Orlando, FL: Academic Press.

Werner, E.E., and Smith, R.S. (1982). *Vulnerable but invincible: A longitudinal study of resilient children and youth.* New York, NY: McGraw Hill.

Wechsler, D. (1967). *Manual for the Wechsler Preschool and Primary Scale of Intelligence.* San Antonio, TX: The Psychological Corporation.

Wheeler, M.P. (1983). Context-related age changes in mothers' speech: Joint book-reading. *Journal of Child Language*, **10**, 259-263.

Whiffen, V.E. (1992). Is postpartum depression a distinct diagnosis? *Clinical Psychology Review*, **12**, 485-508.

Whiffen, V.E. and Gotlib, I.H. (1989). Infants of postpartum depressed mothers: Temperament and cognitive status. *Journal of Abnormal Psychology*, **98**, 274-279.

Whitehurst, G.J. and Valdez-Menchaca, M.C. (1988). What is the role of reinforcement in early language acquisition? *Child Development*, **59**, 430-440.

Whitehurst, G.J., Flaco, F.L., Lonigan, C.J., Fischel, J.E., DeBaryshe, B.D., Valdez-Menchaca, M.C., and Caulfield, M. (1988). Accelerating language development through picture book reading. *Developmental Psychology*, **24**, 552-559.

Wolkind, S., and Rutter, M. (1973). Children who have been "in care": An epidemiological study. *Journal of Child Psychology and Psychiatry*, **14**, 97-105.

World Health Organization (1977). Child mental health and psychosocial development. *WHO Technical Report Series* (No. 613). Geneva, Switzerland: WHO.

Yalom, I., Lunde, D., Moos, R., and Hamburg, D. (1968). Postpartum blues syndrome. *Archives of General Psychiatry*, **18**, 16-27.

Yeates, K.O., MacPhee, D., Campbell, F.A., and Ramey, C. (1983). Maternal IQ and home environment as determinants of early childhood intellectual competence: A developmental analysis. *Developmental Psychology*, **19**, 731-739.

Zahn-Waxler, C., Cummings, E.M., McKnew, D., and Radke-Yarrow, M. (1984). Altruism, aggression, and social interaction with a manic depressive parent. *Child Development*, **55**, 112-122.

Zahn-Waxler, C., McKnew, D.H., Cummings, E.M., Davenport, Y.B., and Radke-Yarrow, M. (1984). Problem behaviors and peer interactions of young children with a manic-depressive parent. *American Journal of Psychiatry*, **141**, 236-240.

ZERO TO THREE/National Center for Clinical Infant Programs Committee on Public Policy/Public Education (1992). *Heart start: The emotional foundations of school readiness*. **ZERO TO THREE**/National Center for Clinical Infant Programs. Arlington, VA.

Zilbach, J.J. (1971). Crisis in chronic problem families. *International Psychiatric Clinics*, **8**, 87-99.

Zill, N., and Schoenborn, C.A. (1990). Developmental, learning, and emotional problems: Health of our Nation's children, United States, 1988. *Advance data from vital and health statistics* (No. 190). Hyattsville, MD: National Center for Health Statistics.

Zimmerman, I.L., Steiner, V.G., and Pond, R.E. (1979). *Preschool Language Scale*. Columbus, OH: Charles E. Merrill Publishing Co.

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