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ABSTRACT

This paper annotates research "stories" on the development of infants, toddlers, and preschoolers and is intended to be used by early childhood professionals as a basis for teaching parenting courses and helping families in stressful situations. The references are organized by topic area: (1) child abuse; (2) attachment; (3) fathering; (4) infant development; (5) infant day care effects; (6) early intervention; (7) enhancing language development; (8) mental health; (9) enhancing motor development; (10) nutrition effects; (11) parent involvement; (12) preterm babies; (13) prosocial development; (14) resilience; (15) social class effects; (16) temperament; and (17) teacher-child interaction. There are 45 references, with publication dates ranging from 1935 to 1997; included are both classic and contemporary studies. (KB)

ANNOTATED INFANT/TODDLER/PRESCHOOLER RESEARCH REFERENCES: STORIES CAREGIVERS NEED TO KNOW!

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Introduction

Research findings are a powerful tool that can help professionals, whether teachers, politicians, or community advocates to improve families' lives. Particularly urgent is the need for such an information tool at a time when two different social forces are operating. There is an increase in dual career and single parent families such that many infants and preschoolers are in nonparental care. In addition, adolescent pregnancy is increasing sharply, and the burdens of social support are added to the personal difficulties that childrearing by a teen parent entails. Below are a set of annotated references to researches whose message can clarify the goals and techniques professionals have in working with very young children and their families as well as the advice they might give if requested by families or by policy makers.

The researches in this brief packet provide positive "ammunition" to be used as a basis for teaching parenting courses in high schools and neighborhood centers as a prevention technique. Childcare personnel can share research blurbs with each other to increase their knowledge power and ability to become true partners with parents.

The message of research "stories" is valuable for helping families who are in difficult stressful situations, so that families can learn to cope more effectively and responsively to support a child's emotional flourishing and awaken early motivation toward learning and language competence. Each research finding represents an adventure in scientific and clinical explorations, with the goal of increasing our knowledge so that we can learn to be more effective and appropriate in supporting the development of young children as learners and as kind companions in families, in childcare, classrooms, and in society.

For easier referencing, researches are clustered under topic areas. Add to these "stories" under other headings of your own, such as "Toileting" or "Biting" or "Sibling jealousy". Be sure to add "research ammunition" to your own professional files!

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[1] Presented at the Nevada Early Childhood Conference, Reno, Nevada, March, 1998.

INFANT/TODDLER/PRESCHOOLER: RESEARCH STORIES

ABUSE

Egeland, B., & Sroufe, L.A. (1981). Developmental sequelae of maltreatment in infancy. In R. Rizley & D. Cicchetti (Eds.), Developmental perspectives in child maltreatment(pp. 77-92). San Francisco, CA: Jossey- Bass.

Maternal psychological unavailability had the strongest effects on attachment classification of infants. At 12 months, 43%, and at 18 months 86% of children with psychologically unavailable mothers were classified as Avoidant in the Strange Situation. The rest were C (insecure hesitant/ambivalent) babies.

Main, M., & Goldwyn, R. (1984). Predicting rejection of her infant from mother's representation of her own experience: Implications for the abused-abusing intergenerational cycle. Child Abuse and Neglect, 8, 203-217.

Mothers who revealed, in the Adult Attachment Interview, strong rejections from their parents but who idealize their parents when talking about them tend to have babies who avoid them during the Strange Situation reunion episodes. This was not so if the mother either mentioned forgiving her parents or expressed strong anger about the parental maltreatment she had received as a child.

Main's work extends the Ainsworth ABC classification to a further category D (for dazed/disoriented). These infants when seen at 6 years of age seem to want to approach the parent on reunion, after separation, but then stop and seem to forget their goal. They tend to have had lengthy separations from parents in infancy, and show combined characteristics of the other groups. Main & Cassidy's work with 6-year-olds showed that attachment classification could be predicted from the first year of life for 84% of their sample.

Main, M., & Solomon, J. (1986). Discovery of a disorganized/ disoriented attachment pattern. In T. B. Brazelton & M. W. Yogman (Eds.), Affective development in infancy. Norwood, NJ: Ablex.

Infants who have been abused by their caregivers are likely to fall into a recently identified fourth attachment classification: disorganized/disoriented . Chldren show fear of the adult, confused facial expressions, and a mixture of avoidant and

ambivalent responses. Carlson et al.., 1989 found that 80% of maltreated infants fit this insecure attachment profile. In a study by Lyons-Ruth, Alpern, & Repacholi, 1993, 71% of preschoolers who exhibited higher levels of aggressive behavior toward peers had received the dazed/disorganized attachment category label in infancy assessments.

Abused infants have often had a reluctantly engaged, psychologically distant adult partner, from whom they fear rejection and abuse. George & Main (1979) had shown earlier that abused toddlers show disturbances in childcare. They sidle up to caregivers rather than approach directly; they are indifferent to adult friendly overtures, avoid eye contact, and show aggression not only against peers but against caregivers too. Daycare staff need to become sensitive to the signs of inappropriate parental interactions early so that therapeutic interventions can be undertaken.

ATTACHMENT

Ainsworth, M., Blehar, M., Waters, E., & Wall, S. (1978). Patterns of attachment. Hillsdale, NJ: Erlbaum.

Attachment, defined as a "relatively enduring emotional tie to a specific other person" represents an ethological balance in a goal-corrected partnership (Bowlby, 1969) between an infant's need for security/love and for exploration. Attachment assessed in the Ainsworth Strange situation is measure in a series of 8 3-minute episodes. A baby plays with mother and stranger in room, then undergoes two separations where mother leaves baby, first with stranger, then alone. The reunion behaviors of the infant permit classification of three major types of attachment. Securely attached (B) babies accept comfort from mother on her return. They mold into her body. They are able to rejoin play at a constructive level once mother returns. Their mothers serve as a secure base from which the infants can explore the environment. These mothers were accepting of and cooperative with their babies' needs and accessible when infant signaled their distress. They interpreted infant cues sensitively and correctly and tried to meet infant needs. They showed interactive synchrony with their babies, held them tenderly for feedings, and provided floor freedom for play.

Anxious/avoidant (A) insecure infants seem indifferent to maternal departure and reappearance. At-home observations show they can be very demanding of mother. Mothers of A babies do not enjoy or provide bodily cuddling. Ambivalent/resistant (C) insecure babies approach for comfort on reunion, but cannot accept comfort; they may cling or express anger by pushing away. They show limited explorations in play. Observed in the home, prior to 12 and 18 month assessments of attachment, mothers of C babies seemed insensitive to baby signals of distress. They tended to meet their own rather than infant needs. Mothers of A and C babies were

often rigid, unresponsive, and more demanding that babies' schedules and behaviors be responsive to the mother's needs. They might refuse to "childproof" a room for young toddlers.

Later researches show that Resistant babies show ineptness with peers (victims) and chronic and low-level dependency with early childhood teachers, while Avoidant babies may grow up to become distant, hostile, and bullies.

Bretherton, I., & Waters, E. (1985). Growing points of attachment theory and research. Monographs of the Society for Research in Child Development, 50(1-2), Serial No. 209.

This superb monograph explains the theoretical basis and seminal researches of Dr. Mary Ainsworth and colleagues on the varieties of secure and insecure attachment of infant to parent.
How a person construes internals models of attachment figures in adulthood seems to be involved in intergenerational transmission. Thus rethinking and reworking of past inappropriate or abusive relationships can help a parent avoid behaving similarly. Idealization of rejecting parents or lack of reflectiveness about parenting received can lead to parental repetition of harmful practices they experienced in their own infancy.

Erikson, Sroufe, & Egeland report that Avoidant babies observed in preschool showed maladaptive behaviors such as acting withdrawn, hostile, impulsive, highly dependent, noncompliant, and poor in interactive social skills with peers. Cross-cultural researches on infant attachment shows variations in degree of ABC babies in Japan, Israel and Germany. The use of the Q-sort technique to establish attachment and dependency of older infants is explained, as caregivers sort descriptions on cards describing babies into piles that represent how like or unlike that baby is.

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

Babies who had tested at 12 and 18 months as secure, avoidant, or ambivalent were brought into the laboratory as older toddlers. They were given attractive play toys, and then soon after were asked to clean up. All the toddlers expressed strong negativism about having to stop playing with these toys so soon! However, when placed in a room with difficult tool-using tasks that were too hard for toddler to solve by themselves, the infants previously rated secure showed zestfulness in tackling the hard tasks and were cooperative and compliant with maternal suggestions.

Those who had been classified as insecure infants now showed

oppositionality, crying, temper tantrums, lack of compliance with maternal suggestions, and lack of persistence in trying to solve the problems. Their mothers gave fewer helpful suggestions. This classic study shows the early linkages between attachment relationship in early infancy and later socioemotional and intellectual motivation to tackle difficult tasks.

NICHD Early Child Care Research Network (1997). The effects of infant child care on infant-mother attachment security: Results of the NICHD study of early child care. Child Development, 68(5), 860-879.

From 10 sites nationally, 1,364 socially and racially diverse children were assessed at 6,15,24 and 36 months after birth (and were followed to age 6). Teen moms were excluded from the study. Positive caregiving and language stimulation contributed between 1.3% and 3.6% of the variance to child cognitive and language development. The higher the quality of provider- child interaction, the more positive the mother child interactions, and the more sensitive and involved the mothers over the first three years.

The longer the time that infants and toddler spent in child care, there were fewer positive interactions with their moms at 6 and 15 months of age, and less affection with their moms at 2 and 3 years. Family income, mother's vocabulary, home environment, and parental cognitive stimulation were more important than child care quality in predicting cognitive and language advancements. Children made larger gains in centers than in family childcare homes.

Children from ethnic minority groups were more likely to be cared for in settings that do not offer as many opportunities for messy play reading books and active explorations as children from other groups. Children reared in economically disadvantaged homes were more likely to be insecurely attached to their mothers. When mothers strongly endorsed statements supporting the possible benefits of maternal employment for children's development, their infants were more likely to be insecurely attached, and these moms were also observed to be less sensitive and responsive and to have their children in poorer quality care at earlier ages, for more hours per week.

At 15 months, boys received less responsive care than girls both in centers and in childcare homes.

Infant daycare per se (observed quality of care, amount of care, age of entry, and frequency of care starts) did not appear to be a risk factor for insecure attachment. Neither infant temperament nor sex of child was related to attachment security ratings. Maternal Sensitivity was significant: The least psychologically well-adjusted moms (those who were least sensitive/responsive) had more infants classified A (16-19%) and fewer secure B (53-56%) compared with the most sensitive moms

(9-11% A, 12-14% D, 60-65% B babies).

Dual-risk effects were found: the lowest proportion of secure attachment was found when both maternal sensitivity and childcare quality were low. For children with less sensitive moms, security proportions were higher if the children were in high quality care than in low quality care. Child care quality counts! The less time that children of less sensitive and responsive moms were in care, the more likely they were to be securely attached.

FATHERING

Grossman, K. (1997, April). Infant-father attachment relationship: Sensitive challenges during play with toddler is the pivotal feature. Poster presented at the SRCD Biennial meetings, Washington, DC.

Quality of attachment is an age appropriate balance between attachment and exploratory behaviors. When the organization of exploration becomes important, in toddlerhood, the role of the father proves very important. Paternal sensitivity in challenging his child (N = 47 North German families) in a 10 minute playdough interaction, was associated with cognitive competence and with child security (especially for children with an MDI (intelligence level) below the group median of 111) at age 10, as measured by the Main AAI - Adult Attachment Interview. This measure assesses whether parents are "autonomous/ secure", "dismissive" of the importance of early attachment relationships, "overinvolved" emotionally in their childhood experiences, or "unresolved" about early attachment. These categories of parental internal working models of attachment correlate with infant patterns respectively, of secure, avoidant, resistant, and disorganized/disoriented attachment.

"Dismissiveness" in the youth's AAI at age 16 was negatively related to paternal sensitivity way back in toddlerhood. Father's presence at birth of the baby, his empathy, and his involvement in infant care during the first year were significantly related to his sensitivity in playful challenges(but not attachment quality). Conclusion: "fathers influence the child's security by their sensitivity in challenging the toddler" to play in more mature ways and to keep focusing on the play goals and cooperation toward new skills.

Lamb, M. E. (1981). The development of father-infant-relationships. In M. E. Lamb (Ed.), The role of the father in child development. New York: Wiley.

Babies prefer fathers as playmates, possibly because father play is more vigorous and stimulating. When they are tired and stressed, babies prefer mothers. Outside of the laboratory, mothers have been found to be more involved than fathers in holding talking, showing affection, and stimulating with a toy. Men who become

the primary parent for their infant usually adopt a more motherly style.

Pederson, F. A. (1982). Mother, father, and infant as an interactive system. In J. Belsky (Ed.),In the beginning: Readings in infancy (pp. 216-226). New York: Columbia University Press.

Twenty male infants were observed in mother infant feeding situations; fathers were interviewed in depth by a psychiatrist, and the infants' developmental level was assessed. All three measures were independent. A chicken and egg effect was found. When fathers had high esteem for their wives as mothers, then wives were feeding more competently (r = .40). Maternal competence in feeding negatively correlated (-.60) with father reports of tension and conflict in the marriage, negatively with infant motor maturity on the Brazelton (-.42), and negatively (-.70) with negative father infant relationship. Thus, the worse the marriage, the worse the mothering, and the less positive the infant's development. Father positive affect with baby correlated positively (.48) with maternal feeding competence, with infant developmental alertness (.52) and with infant motor maturity (.64). Thus, a family systems approach needs to be taken in preventive work to teach about parenting and in outreach work with at-risk families to prevent developmental delays and family dysfunction. Marital and family and infant positive development are interconnected.

INFANT DEVELOPMENT

Fantz, R. L. (1961). The origin of form perception. Scientific American, 204, 66-72.

Babies were placed on their backs in an enclosed criblike chamber. Through a peephole an observer can determine which stimulus object a baby is regarding, since that picture will be reflected on the infant's cornea. Babies one to six months old looked at disks decorated with stripes, bull's eyes, facelike features or newsprint much longer than they looked at plain solid-colored circles. Babies prefer interesting stimuli, such as the human face. This technique of preferential looking has been used to observe infant visual preferences.

Pineau, A., & Strer, A. (1990). Intermodal transfer of spatial arrangement of the component parts of an object in infants aged 4-5 months. Perception, 19, 795-804.

By six months of age, infants who have explored an object with their hands alone can recognize the object by sight alone. Thus babies have sophisticated competencies in sensory intermodal understandings. Indeed, others researchers have shown that if a baby has mouthed an object, the baby then prefers to look at an object not mouthed, which suggests awareness of the difference and preference for the new, and therefore more interesting object.

Sorce, J. F., Emde, R. N., Campos, J., & Klinnert, M. D. (1985). Maternal emotional signaling: Its effect on the visual cliff behavior of 1-year-olds. Developmental Psychology, 21, 195-200.

One-year-olds placed on the shallow side of the visual cliff apparatus (a glass-topped long table with patterned materials that are placed underneath to suggest a cliff fall-off at the halfway point) were coaxed to crawl toward the point where the cliff apparently drops off. Half of the mothers posed a happy expression; the other half expressed a fearful look. With the happy moms, 74% of babies crossed the deep side . None of the infants whose moms looked frightened crossed the perceptual boundary of the apparent cliff, and they looked fearful too after they "read" their mothers' expressions . This process of correct emotional interpretation is called "Social referencing". Babies use the emotional expression of caregivers to derive the significance of an event and to decide how to respond. Caregivers need to be sure they are not giving emotional signals of anger, fear, or disgust to infants as they perform routine caregiving such as diaper cleanups.

Sroufe, L.A., & Waters, E. (1976). the ontogenesis of smiling and laughing: A perspective on the organization of development in infancy. Psychological Review, 83, 173-189.

Research presentations to infants shows a progression toward more effectiveness of cognitive interpretations in eliciting humor. First smiles begin around 3 weeks, often in response to cooing and human smiles. The frequency of smiling increases during the third and fourth month of life in many cultures. Infants begin typically to laugh between 6 and 12 weeks of age, at first, in response to physical stimulation such as tickling or to funny sounds such as "Boom boom boom". After six months, they laugh more at visual and social stimuli, such as peek-a-boo games or mother shaking a rag in her mouth. That is, an incongruous but safe event is more likely to make infants laugh.

INFANT DAYCARE EFFECTS

Belsky, J., & Rovine, M. J. (1988). Nonmaternal care in the first year of life and the security of infant-parent attachment. Child Development,59, 157-167.

Study of Pennsylvania couples showed that fulltime infancy care experience, but not part-time (under 20 hours per week) is associated with higher probability of insecure attachment, less compliance and more child aggression later.

Caldwell, B., Wright, C., Honig, A., & Tannenbaum, J. (1970). Infant day care and attachment. American Journal of Orthopsychiatry, 40(3), 397-412.

This pioneer study was the first to show that high quality childcare beginning at 6 months (half-day until 18 months) for middle and lower social class infant together resulted in gains in cognitive scores over two years in program. Children whose mothers did not have as close and nurturant a relationship, regardless of whether the infants were in the Children's Center or not, fared less well.

Haskins,R. (1985). Public school aggression among children with varying day-care experience. Child Development, 56, 689--703.

Low-income infants in fulltime care in the Abecedarian high quality daycare that emphasized cognitive competence were later found in kindergarten to be 15 times more aggressive toward peers on the playground, in the classroom, and in hallways compared with control children. When "My friends and me", a prosocial program, was introduced into the childcare curriculum for the next waves of infants enrolled, then differences between program and control children when they reached kindergarten subsequently disappeared.

Park, K., & Honig, A. S.(1990). Infant child care patterns and later teacher ratings of preschool behaviors. In A. S. Honig (Ed.), Varieties of early child care research (Special Issue). Early Child Development and Care, 68, 89-96.

Preschool teachers, blind to infancy care experiences, rated 105 middle-class children (mean age 53 months) on the 30 item Preschool Behavior Questionnaire (PBQ) and the Preschool Behavior Rating Scale (PBR). Preschoolers who had been in full-time nonparental care from early infancy onward were rated more competent intellectually in abstract thinking on the PBR. Teachers also rated them as higher on the Hostile-Aggressive factor of the PBQ compared with children who had never had fulltime nonparental care as infants or toddlers. No differences were found for teacher ratings of assertiveness on the PBR or for the Anxious/fearfulness or Hyperactive-distractible factors of the PBQ. No differences were found in current attachment classifications (measured by the Waters Q Sort) for the preschoolers as a function of their earlier infancy nonparental care experiences. Although boys showed more aggression than girls by observations of free play and by teacher ratings, there were no gender effects of timing of entry into nonparental fulltime care for aggression of boys and girls.

Isabella, R. A. , & Belsky, J. (1991). Interactional synchrony and the origins of infant-mother attachment: A replication study.Child Development, 62, 373-384.

Interactional synchrony between mother and baby seemed to be the crucial difference separating securely attached versus insecure infants. Such synchrony is seen when the adult fine tunes responsiveness to signals from the baby, in an emotional "dance" whereby they match positive emotional states, and the adult figures out what baby needs when distressed and provides comfort and relief in a well-timed and appropriate fashion.

INTERVENTION: RELATION TO INTELLIGENCE, DELINQUENCY, ETC.

Honig, A. S. (1994). Intervention, infant and preschool: Effects on intelligence. In R. Sternberg (Ed.), Encyclopedia of Intelligence (Volume 1) (pp. 599-607). New York: MacMillan.

This review of effects of early enrichment programs for infants and young children on intelligence provides a good summary of research findings. Although a rise in IQ scores right after enrichment does not seem to be sustained significantly several years after participation in program, positive cognitive enhancement as a function of early program participation is suggested by the fact that participants are later in life less likely to: fail a grade; be put into special education; and drop out of school. If pregnant, they are more likely to go back and complete schooling. They are less likely to be supported by Welfare and more likely to have held a job compared with control children.

Lally, J. R., Mangione, P.K., & Honig, A. S. (1988). The Syracuse University Family Development Research Program: Long-range impact of an early intervention with low-income children and their families. In D. Powell (Ed.), Parent education as early childhood intervention: Emerging directions in theory, research, and practice. Norwood, NJ: Ablex.

The Family Development Research Program (FDRP) was an omnibus enrichment program that served low-income high school dropout mothers (85% unwed; mean age 18 years) from the second trimester of pregnancy through the first five years of life. From six months onward, infants attended the Children's Center (half-day initially, then full day from 18 months to 5 years). The program emphasized rich language, body loving, responsive, tuned-in attentiveness, Piagetian sensorimotor and early preoperational games, and opportunities to learn concepts through hands-on experiences with materials and toys. Families received weekly home visits from trained paraprofessionals, who provided emotional support, detailed modelling of Piagetian activities, positive problem-solving skills, nutritional information, book and toy lending, and family support.

Approximately 10 years after the children had graduated from the FDRP program, court records, interviews and teacher assessments revealed that only 4/65 program youth had juvenile delinquency records (for a total cost per child of $186) compared with 12/54 delinquent control youths, 5 of whom had been recidivist and many of whom were charged with serious offenses (total court cost per control child was $1985). No program females were failing classes. They were less likely to truant and more likely to have passing grades. In contrast, more than half of the girls in the control group had averages below C and 16 were failing in school.

Teachers rated program girls as valuing school more and expending effort in school work. Control girls were significantly more likely to be rated by teaches as

reading poorly and being easily led into trouble by peers. No comparable significant educational success of program for program male youth was found.

Levenstein,P.(1988). Messages from home.: The Mother-Child Home Program and the prevention of school disadvantage. Columbus, OH: State University Of Ohio Press.

Low-income families in housing projects were provided with either one or two years of toddler intervention. Home visitors gave a toy or book during each visit and showed mothers how to use the VISMs - Verbal Interaction Stimulus Materials - to encourage language interactions. IQ scores of all six MCHP cohorts were superior to controls. The average gain after two years was 17 IQ points. Post-program advantages lasted into 5th and 8th grade. The MCHP model particularly promoted cognitive gains for children of high-risk mothers labelled "Hesitaters" when compared with children of "Strivers" - mothers who were more self actualized and had worked to attain their high school diplomas. Recent follow-up data show that 15.7% of program completers as toddlers dropped out of high-school vs. 40% of control youth and 84.1% graduated vs. 54.9% of control teens (Child Development,April 1998).

Ramey, C.T., & Gowan, J.W. (1986). A general systems approach to modifying risk for retarded development. In A.S. Honig(Ed.) Risk factors in infancy. London: Gordon & Breach.

Adolescent mothers's infants, at high risk for subsequent school failure, attended cognitively oriented daycare in the Carolina Abecedarian Project at the Frank Porter Graham Child Development Center in North Carolina from early infancy. Iron-fortified formula and family social work services were provided for the control group to diminish any potential Hawthorne effects for the educational group. Half of the infants in each group had in-utero nutritional deficits as indexed by low Ponderal Index (they were long skinny babies). By 36 months, the IQ's of the infants revealed sharply the positive buffering effect of high quality daycare: Educationally treated average PI babies had 98.1 compared with their controls' 84.7 mean IQ score. For low PI program babies the differences were even more remarkable: mean IQ 96.4 compared with the control low PI mean of 70.6. The low PI untreated babies had mothers who showed less and less interest in them. Without educational intervention early in infancy, spirals of increasing maternal inattention combined with initial birth conditions increased the risk of lowered intellectual performance in babies of at-risk parents.

LANGUAGE ENHANCING

Barclay, K., & Benelli, C. (1997). Research highlights. Opening the world of literacy with infants and toddlers. Dimensions of Early Childhood, 25(4), 9-16.

Learning how to communicate with written words is a process that begins from birth, and frequent pleasurable reading to babies is a powerful booster of early reading

and writing competencies. This review of research also gives a program description of how caregivers vigorously promote curiosity about print, toddler involvement and love for books.

Dunham, P. J., Dunham, F., & Curwin, Q. (1993). Joint-attention states and lexical acquisition at 18 months. Developmental Psychology, 29, 827-831.

Joint attention, whereby the caregiver follows the preverbal infant's pointing or vocalization, increased language learning in infants by 18 months.

Fernald, A. (1985). Four-month-olds prefer to listen to motherese. Infant Behavior and Development, 8, 181-195.

Young infants were trained to turn their heads to activate a loudspeaker positioned on either side of them. Infants were more prone to turn their heads if their "reward" was a female stranger's voice speaking in a high pitched voice as she would to a baby, rather than if she used normal adult talk. Further researches of Furnald confirmed that neither the loudness nor rhythm of the speech but the baby's preference for high-pitched motherese talk influenced their behavior. "parentese" baby talk is a good way to engage a baby's alertness to human turn-taking talk. Slow your voice, prolong your vowels, smile and use raised tones. As the baby matures, modify your speech to match the baby's maturing language.

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

Marked social class differences exist between higher SES white and black mothers and low SES mothers of toddlers. Low SES mothers used "don't" about 1 in 4 utterances compared to 1 in 12 high SES mothers' utterance. High SES mothers responded in kind and responded contingently to their infants' vocalizations and babbling. Low SES mothers were more likely to use control categories or ignore the toddler's wishes or requests. Social class but not ethnic differences in language interactions were pronounced. These results are important, because Elardo, Bradley, & Caldwell (1975) have reported that the level of language and emotional responsivity of mothers correlated more than any other aspect of the home environment in infancy with preschool language subscale scores on the Illinois Test of Psycholinguistic Ability.

Early language stimulation and facilitation is crucial for later language competence. Help parents learn how to talk with babies!

Tomasello, M. (1992). The social bases of language acquisition. Social Development, 1, 68-87.

When an adult supplies a label after rather than before a baby has looked at an object, the child comprehends the label better. Infants seem to learn words best when

they already are attending to the object and the caregiver tunes into their attentiveness.

MENTAL HEALTH

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

Infants of clinically depressed mothers express much negative affect (sadness and anger) in face-to-face interactions even with non-depressed adults, possibly because their mothers are so often not engaged with them. Thus, an anxious baby might interpret a new childcare situation as fearful. Caregivers need to be aware of and not feed into negative, fearful, or depressed affects of infants that are due to learned interactions with a depressed parent. Through their positive ministrations and intimate attunements, caregivers need to help infants feel secure enough to react with zest, curiosity, and emotional pleasure.

Fraiberg, S., Adelson, E., & Shapiro, V. (1980). Ghosts in the nursery: A psychoanalytic approach to the problems of impaired infant-mother relationships. In L. Fraiberg (Ed.),Selected writings of Selma Fraiberg(pp. 100-136). Columbus, OH: Ohio State University Press.

Superb clinical insights and skills permit a therapist in home outreach work to reach through to the ghosts of grief, anger, rage, and shame from the mother's past. Some mothers could not empathize that the baby was cranky because she has been left with a new caregiver so many times in the past weeks. Some do not "hear" the baby's wailing cry for over 20 minutes, nor tend to the baby's needs, so lost are they in the pain from their own past, when nobody heeded their cries. The therapist works to heal these hurts so that the mother no longer endangers her baby through projections of earlier emotional trauma and hatred onto her infant. This book is a clinical treasure trove for those who need to help families where an infant is in danger of failure to thrive or in danger of parental abuse because of parental "ghosts" from the past. Clinical researches provide detailed descriptions of how the therapist provides ego supports, and models a "good parent" for the at-risk mother as well as teaches early child development.

MOTORIC SKILL ENHANCEMENT

McGraw, M. B. (1935). Growth: A study of Johnny and Jimmy. New York: Appleton-Century.

In this classic study, the abilities of twin brothers were frequently assessed after the hypotonic twin, Johnny, had been assigned to an intensive daily personal enrichment program in a hospital setting where the twins were taken every weekday and where Jimmy received routine baby care. Johnny learned how to climb steep inclines, lug huge boxes near to one another to climb up and get a lure on top of the tallest box, problem solve to swing a tool through the air to recuperate a wanted lure, roller skate, swim, jump fearlessly with deep knee bends from a tall tower and other problem solving and motoric skills.

FOLLOW UP: Thirty years later, when Dr. McGraw invited both twins to her home and asked them to climb ladders and do trampoline work, the early muscular grace, assurance, and superior agility that the infancy training had engendered in Johnny were clearly visible on videotapes of their coordination and motoric abilities.

NUTRITION EFFECTS

Honig, A. S., & Oski, F. (1986). Solemnity: A clinical risk index for iron deficient infants. In A. S. Honig (Ed.), Risk factors in infancy(pp. 69-84). London: Gordon & Breach.

Four groups of infants with iron deficiency but without anemia (hemoglobin >11.0 g/dL) were studied in an attempt to discover behavioral signs that can be used to index high risk probability for iron deficiency. The 38 9-12 month low-income infants were classified as iron replete, iron depleted, or iron deficient, based on biochemical analyses. Intramuscular iron was given immediately to all infants after administration of the Bayley Scales of Infant Development. The initially iron deficit infant achieved a significant retest increase on the Bayley Mental Development Index (MDI) of 21.6 points compared to nonsignificant 6.2 and 5.6 point respective changes for the iron replete and iron depleted infants.

For 10/18 iron deficient infants who were rated high on solemnity during pretest, but low on posttest, mean MDI increase was 30.3 points, compared to a 10.3 point increase for the 3/20 normal and iron depleted infants whose solemnity scores changed. Solemnity in securely attached infants may be a useful clinical indicator for the need for infancy biochemical iron screening.

PARENT INVOLVEMENT

Bromwich, R. (1981). Working with families and their infants at risk: A perspective after 20 years of experience. Austin, TX: Pro-Ed.

Compassionate and empathic, this home-based approach gives details of how to reach and teach low-income mothers about positive

interactions with infants while enhancing their self esteem. Workers in home outreach programs are urged to use a positive scale to rate the advancing skills and sensitivities that mothers develop as the relationship between worker and parent leads to enhancement in the mother-infant relationship and increased maternal appropriate responsiveness and developmentally appropriate skills with baby. THe workers listens empathically, asks qesutions, discusses with, and encourages the parent.

Honig, A. S., & Morin, C. (1997). When should programs for teen parents and babies begin? In F. Parker (Ed.) Proceedings of the third biennial Head Start research conference. Washington, DC: Head Start.

Confirmed child abuse/neglect rates were studied several years after program for three groups of low-education, low-income teen mothers: a "contrast" group not at high risk of abuse, who received just an initial home visit; a "program" group of high risk moms who received supportive child development oriented home visits for 18-27 months either from pregnancy onward or beginning soon after; a "dropout" high risk group who dropped out of program after a mean 6-7 home visits. Abuse rates varied as a function of time of intake. Whether they were enrolled during pregnancy or afterward, teen mothers who remained in the program for about two years had the same abuse rates as the contrast low-risk group. But for the high-risk dropout mothers, enrollment prior to baby's birth (but not after birth) made a significant difference in lowered abuse/neglect rates years later. Thus, WHEN a program begins for high risk young moms may be crucial in preventing later abuse or neglect. Also, program dropouts had 2.14 children vs. 1.68 children for the no-risk contrast group. The cost effectiveness of the Teen Parents and Babies Program was significant. Mean program costs for home visitation were about $4.00 per day, but foster care costs for abused preschoolers were about $24.00 per child.

PRETERM BABIES

Beckwith,L., & Cohen, S. E. (1990). Social interaction with the parent during infancy and later intellectual competence in children born preterm. In A. S. Honig (Ed.), Early parenting and later child achievement. London: Gordon & Breach.

Of 123 infants born preterm, 93 were followed to 8 years of age. Preterm babies who experienced more responsive interactions with mothers showed higher intelligence scores from age 2 through 8. At age 8, the WISC-R scores for lower and higher SES children of less responsive mothers were 104.8 and 103.5 respectively. The scores for more responsive lower and higher SES mothers were 102.8 and 118.7 respectively. Thus, maternal responsivity in conjunction with higher SES was most effective in boosting scores of very low birthweight (mean: 1802.8 grams) infants.

Field, T. M., & Shanberg, S. M. (1990). Massage alters growth and catecholamine

production in preterm newborns. In N. Gunzenhauser (Ed.) Advances in touch: New implications in human development (pp. 96-104). Skillman, NJ: Johnson & Johnson.

Forty preterm newborns (average 30 weeks gestational age) received three 15-minute massage stimulations every day for ten days in the hospital. The treated infants averaged a 21% weight gain over the control infants during treatment and showed more mature sleep organization and less stress (as evidenced by fewer grimaces, clenched fists and mouthings). The massaged babies were able to go home from hospital five days earlier than controls, for a saving of $3000 per infant. Following the tactile/kinesthetic stimulation, treated babies showed superior performance on some Brazelton neontal scale (NBAS) items. PROSOCIAL DEVELOPMENT

PROSOCIAL DEVELOPMENT

Pines, M. (1979). Good samaritans at age two? Psychology Today, 13(1), 66-77.

Researches by Yarrow and Zahn-Waxler reveal that by age two, children whose mothers have 1) modelled tender solicitude for the baby's personal upsets or stresses and 2) have firmly not accepted that the infant use physical hurting to solve a social problem, have toddlers who are significantly more concerned and empathic in response to peer's and adults' discomforts, fear, crying, and other upsets. They return a cracker to the tray of a baby who is crying because he dropped it. They offer their blanket or bottle to an exhausted or hurting parent. Caregivers can promote early development of altruism in infancy by their own models.

These results were stable. Five years later, school teachers, blind to early status of the children, rated the children who had been baby altruists as much kinder and more concerned about others than their peers.

Adults who use inductive methods (explaining: "Don't hit Suzy's arm. See, that hurts her. Look she is crying. I don't want to have any child hurt in this class! You may not hit another child. Come and tell me when you are upset about something. ") rather than power assertion (forceful commands and physical punishments) methods are more likely to have more prosocial toddlers and preschoolers.

Shure, M. B. (1993). I can problem solve (ICPS): Interpersonal cognitive problem solving for young children. Early Child Development and Care, 96, 49-64.

Teachers of low-income preschool and kindergarten children were trained to help youngsters learn to think through and solve typical interpersonal problems with peers and adults. Compared to non-trained controls, youngsters trained to think of alternative solutions and consequences of actions improved most in impulsive and inhibited behaviors observed in the classroom. Low-income children trained in ICPS by

their mothers were able to generalize their new problem solving skills to the school.Well adjusted four year olds think of more non-forceful/aggressive solutions to their social problems:

> Zachary, a good problem solver wanted Richard to get out of the wagon because he said "It's my turn now." Richard said
> "I'm playing with it." Zachary did not react impulsively. "If you let me have the wagon, I'll give it right back." Richard did not reply. Zachary then asked him,"Why can't I have it?". Richard replied: "Because I need it. I'm pulling the rocks." "I'll pull them with you" shouted Zachary. "O.K." said Richard. And the two children played with the wagon together.(p.51)

Lessons for teachers are simple scripts in game form. For example, smile and ask the child "What am I doing?". "Yes, I am smiling. I am smiling because I feel happy."

Another script might be "Snatching a toy away from (child) is one way to get the toy. Can you think of a different way?"

RESILIENCE

Werner, E., & Smith, R.S. (1987). Overcoming the odds: High risk children from birth to adulthood. Ithaca, NY: Cornell University Press.

Despite being born at risk in poor families on the island of Kuaui, about 1/4 of the children grew up showing normal development by 32 years of age. The buffering factors that protected these children from early stress included: at least two year spacing between childbirths; four or fewer children in the family; at least one consistent loving adult who nurtured the infant during the earliest years; no loss of mother for lengthy periods of time during infancy; positive infant mood; required helpfulness such that youngsters had chores and clear rules at home and felt important as helpers.

SOCIAL CLASS EFFECTS

Hart, B., & Risley, T. (1995). Meaningful differences in the everyday experience of young American children. Baltimore: Brookes.

For the first two years, the authors intensively followed the language interactions of children from different social classes at home and then studied their cognitive accomplishments until age 10. By three years of age, children from professional families used twice as many words as welfare children, a third again as

many as children from middle and lower SES families, and they had received over a half-million words of encouragement, compared with less than 100,000 from welfare families. Thus social class proved a significant factor for boosting or not facilitating children's intellectual and language development.

Parental diversity of language, tone of feedback, emphasis on symbolic language, guidance style, and responsiveness to children accounted for 61% of the variance in children's vocabulary growth by age three and for 59% of the variance in their Stanford-Binet cognitive scores. This study shows how powerfully important the roles of nurturing adults can be to boost children's intellectual/ language accomplishments!

Willerman, L., Broman, S.H., & Fiedler,M (1970). Infant development, preschool IQ and social class. Child Development 4, 69-77.

Having tested 3037 infants at 8 months (with Bayley scales) and 48 months (with the Stanford-Binet), the investigators looked at the impact of social class on intelligence scores. Those babies in the lowest quartile (below 70 IQ) at 8 months, who were reared in upper class, highly stimulating families, had higher IQ scores at 4 years than babies in the highest quartile of IQ scores at 8 months who were reared in the lowest SES families. Low IQ combined with low socioeconomic circumstances of the family made for the highest risk factors for later preschool intelligence.

TEMPERAMENT

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

Attachment outcomes for infants with very different temperament styles were studied. The three main temperament styles are: triggery/intense/irritable; slow-to-warm-up/low-keyed in mood/avoidant(rather than approaching the new); and easy/regular/adaptable/approaching/positive mood infants. When mothers were invested in and involved with their irritable infants very early in the first year and had positive support from a spouse, then an irritable infant was just as likely as an easy baby to be securely attached by the end of the first year of life.

Thomas, A., & Chess, S. (1985). The behavioral study of temperament. In J. Strelau, F. Farley, & A. Gale (Eds.), The biological bases of personality and behaviors: Vol. 1. Theories, measurement, techniques and development (pp. 213-225). Washington, DC: Hemisphere.

Temperamental traits were traced from infancy through adolescence. Some

children displayed clear cut consistency in nine temperamental traits (obtained from inductive content analysis of interviews): activity level (high or low); approach or withdrawal in response to new stimuli; adaptability in adjusting to new situations after initial approach or withdrawal response is made; quality of mood (pleasant or negative); distractibility; threshold of response to distress; intensity of response to stress; rhythmicity of bodily functions such as feeding, sleeping, and voiding; attention span/persistence. Infants do show individually different temperamental repertoires even in the first few weeks of life. However, the broad category of the difficult child (vs. the easy or slow-to-warm-up child) did not reliably predict that behavioral problems would develop at a later age. Despite temperament/personality differences that are more difficult for a caregiver, well-loved babies who are tenderly cared for and positively responded to and whose distress signals are met with comforting caregiver behaviors, will become securely attached.

Van den Boom, D.C.(1995). Do first-year intervention effects endure? Follow-up during toddlerhood of a sample of Dutch irritable infants. Child Development, 66, 1798-1816.

Low-income mothers Netherlands's first-time mothers (N = 100) of irritable (by 2 Brazelton exams) 6 month old babies were assigned either to a control or intervention group. After pretesting, until 9 months, for three sessions, every two weeks, home visitors provided mothers of E babies with two hours of intervention that taught them sensitivity skills: how to be more sensitive to their infants and focused on responsiveness to negative and positive infant cues. Assessment of attachment security by the Ainsworth Strange Situation was carried out at 12 months and 18 months in the lab. At 18 months, assessments included family stress, quality of toddler mother free play with set of toys, and Bayley scales. At 24 months, mothers' quality of instruction and assistance was measured in the lab with 3 (5 minute each) toddler tasks: 1: complete a jig saw puzzle; 2: blow through a straw against a small plastic ball in order to score a goal; 3: remove a small box with candy from a bottle by using a stick.

Maternal and child behaviors were observed by event sampling and the frequency counts for task orientation, problem solving attempts, negativism, positive affect, etc. were factor analyzed as were maternal behaviors, such as adequate or inadequate instruction, negativism, positive involvement, task orientation, feedback, failure in task involvement, verbalization,encouragement, nonverbal instruction loadings), and help. The five factors accounted for 72% of the variance. At 42 months, families were also videotaped at dinner. Children were observed in the lab in a 1/2 hour play session with a same-sex unfamiliar peer with both mothers present (20 minutes free play, 5-minute forced sharing of one toy record player, and 5-minute drawing project with crayons and paper).

The intervention led to gains in maternal responsiveness and promoted secure

attachment of infants to mothers. By 18 months, 74% of untreated infants were classified as insecure vs. 28% insecure of the home-visited babies. The children with secure attachment histories had mothers who were more: accepting, accessible, responsive in communicating, supportive, and sensitive to the toddlers' problem solving difficulties. Compared with control moms, intervention mothers offered their child more guidance in initial encounters with peers, allowed their toddlers more autonomy, shared more interest in toys and activities, used appropriate verbal commands,and were more responsive to toddler initiatives, both positive and negative.

"By intervening at that point in development when mothers lose confidence in their mothering, it is possible to prevent negative cycles of interaction to develop"(p.1813). Based on van den Boom's work, Ross Thompson (1997) advocates "the careful scaffolding of assistance during challenging or threatening experiences" (p.596) as a crucial feature of caregiver sensitivity by the end of the first year (see article: Sensitivity and security: New questions to ponder. Child Development 68(4), 595-597).

TEACHER INTERACTIONS: THEIR POWER

Wittmer, D. S., & Honig, A. S. (1990). Teacher recreation of negative interactions with toddlers. In A. S. Honig (Ed.), Optimizing early child care and education (pp. 77-88). London: Gordon & Breach.

Fifty two-year-olds and fifty three-year-olds from low-income families were observed in 10 urban daycare centers serving disadvantaged families. Microanalytic chains of child-teacher interactions were recorded and then coded to represent positive and negative behaviors. Two-year-old male toddlers behaved more negatively than two-year old females or three-year-olds. In turn, male toddlers elicited more negative behaviors from their caregivers. Teachers seemed to be controlled by children's behaviors. They responded positively to positive behaviors and negatively to negative behaviors. Providers may unwittingly recreate in group care the negative interactions, predictive of poor socioemotional adjustment, that some toddlers are already experiencing at home.

Caregivers and teachers must become self-reflective and aware of their interaction patterns with at-risk youngsters. Otherwise, they may be trapped into continuing the same non-facilitative negative patterns of interactions that the toddlers have already learned well within their families.

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