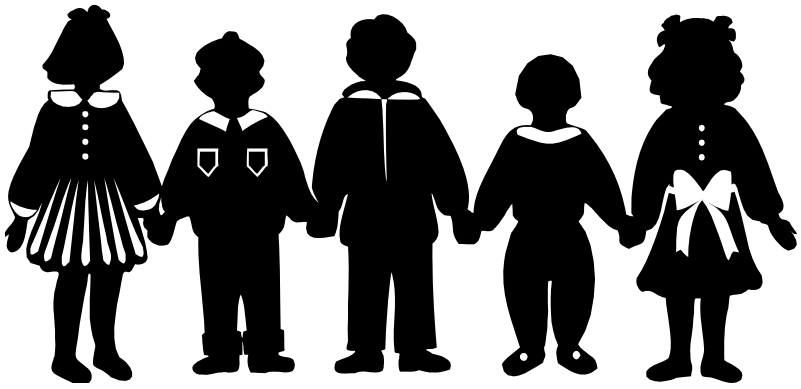
*January, 2004*

# "BEST PRACTICES" IN EARLY CHILDHOOD MENTAL HEALTH PROGRAMS FOR PRESCHOOL-AGE CHILDREN



**This report was supported through a contract with The Kansas Department of Social and Rehabilitation Services, Division of Health Care Policy.**

***Sharon Todd Barfield***
***The University of Kansas School of Social Welfare***
***Office of Child Welfare and Children's Mental Health***
shbarfld@ku.edu

# EARLY CHILDHOOD MENTAL HEALTH PROGRAMS

**CONTENTS** **PAGE**


1. Introduction and Purpose…….. 1

1.1 Risk Factors and Protective Factors…… 1
1.1.2. Trauma and/or Abuse and/or Neglect and Brain Development……... 1
1.1.3. Other Risk Factors…… 3
1.1.4. Protective Factors/Resilience……... 4
1.1.5. Implications of Risk and Resiliency Factors for Early Intervention…… 9

2. Rationale…… 10

3. Literature Review Purpose…… 11

4. Literature Review Process……. 11

5. Results Surrounding Longitudinal Studies of Early Intervention Programs……. 11

5.1. Possibilities About Causation Across Studies……..... 14
5.2. Common Characteristics Across Studies……..... 15

6. Rationale for Examination of Evaluated Formalized Programs…… 15

7. Methodology Surrounding Examination of Formalized Programs……... 16

8. Results of Formalized Social-Emotional Early Intervention Programs…… 16

9. Conclusions/Discussion……..... 31

10. References……... 33

# "BEST PRACTICES" IN EARLY CHILDHOOD MENTAL HEALTH PROGRAMS FOR PRESCHOOL-AGE CHILDREN

## Introduction and Purpose

Mental health services provided to very young children and/or their families have been variously named and conceptualized. Terms such as early childhood mental health programs, mental health early intervention programs, and early social-emotional programs are used interchangeably in the literature. Knitzer (2000) conceptualizes the aim of early childhood mental health programs as "to improve the social and emotional well-being of young children and families by strengthening relationships with caregivers and promoting age-appropriate social and emotional skills… Early childhood mental health initiatives can be defined as a set of strategies and perspectives that:

- promote the emotional and behavioral well-being of young children, particularly those whose emotional development is compromised by virtue of poverty or other biological risks;
- help families of young children address whatever barriers they face to ensure that their children's emotional development is not compromised;
- expand the competencies of nonfamilial caregivers and others to promote the emotional well-being of young children and families, particularly those at risk by virtue of environmental or biological factors; and
- ensure that young children experiencing clearly atypical emotional and behavioral development and their families have access to the needed services and supports." (p. 416-417)

In addition to recognizing that some young children need assistance with the challenges of living with serious emotional disturbance, often services also have a strong preventive focus, and are committed to reaching out to children at risk for developing emotional or behavioral problems (Zeanah, 1993).

## *Risk Factors and Protective Factors*

Social-emotional, mental health early intervention programs for young children focus on fostering protective factors while minimizing risk factors related to social problems. These risk factors and protective factors, identified in the literature, that undergird the topic of this review, are presented in Table 1 and discussed below.

### *Trauma and/or Abuse and/or Neglect and Brain Development*

Research on brain development in young children (Perry, 2000) indicates early experience is important for social and emotional development as well as cognitive

development. Further, social and emotional maturity is considered requisite to good cognitive functioning. A child's capacity to control emotions is related to the interactions between his or her biological system and early experiences and attachments (Knitzer, 2000). Evidence also suggests that high levels of stress in the earliest years undermine brain development (Perry, Pollard, Blakley, Baker, & Vigilante, 1995; Shore, 1997). Thus, children deprived of early warm and nurturing relationships may experience life-long adverse consequences such as impaired school performance and inability to modulate emotions.

Perry (2000) outlines the hierarchical structural organization of the brain and the stages of brain development. The largest proportion of brain development occurs in utero and during the first three years of life. During this critical period, several stages of development occur. Nerve cells are "born," move, and settle into locations in the brain. Neurons mature, create their unique identity, and use any of a hundred different neurotransmitters such as norepinephrine, dopamine, or serotonin. Each neuron makes decisions that determine their location and specialization. Neurons make synaptic connections with other neurons to form an active neural network and send out fiber-like extensions called dendrites that connect with other neurons in order to transmit neurochemical signals.

Then, the stage of "synaptic sculpting"occurs, with the greatest period of activity during the first four years, equilibrium at age six, and a second phase of activity during puberty. During this stage, with consistent activity, the process of neurotransmission becomes more efficient. With little activity, synaptic connections dissolve, somewhat analogous to a "use it or lose it" process. The process of myelination begins in the first year of life and continues throughout childhood with the final burst in key cortical areas occurring in adolescence. During myelination, specialized cells wrap around axons and form sheaves, allowing a neural network to function more efficiently for more complex functions.

In utero, the developing brain is susceptible to damage from toxins such as alcohol or drugs and an inadequate diet, while the developing brain is enhanced by good prenatal care. After birth, the developing brain is capable of being assaulted by deleterious experiences such as early stress, abuse and/or neglect and is capable of being positively affected by beneficial experiences such as contextually rich, stimulating, nurturing environments that can provide foundations for healthy functioning throughout life. Clearly, these years of early brain development with their windows of opportunity for proper development of specific portions of the brain are of crucial importance and highlight the necessity of early childhood intervention, when needed.

Obviously, in terms of research on the effects of neglect on brain development in children, only naturalistic observations can be made. Much of this research derives from naturally occurring contexts in parts of the world where children have been reared in institutional environments such as orphanages bereft of individual attention, cognitive stimulation, emotional affection, or other enrichment.

Dennis (1973) described children who remained at an orphanage until age six. At age 16, the youth demonstrated a mean IQ of about 50. Children adopted prior to age two had a

mean IQ of 100 by adolescence while children adopted between ages two and six had IQs of approximately 80. The older a child was at the time of adoption and the longer the child spent in the neglectful environment, the more pervasive and resistant were the deficits.

Rutter & English (1998) and Rutter, Anderson-Wood, Beckett, Bredenkamp, Castle, Grootheus, Keppner, Keaveny, Lord, O'Connor, English & Romanian adoptees team (1999) described children adopted prior to age two from very emotionally and physically deprived institutional settings in Romania. Approximately one half of the children were adopted prior to age six months and the other half between six months and two years of age. At the time of adoption, all of the children had significant delays. Four years after being placed in stable, enriching environments, both groups improved. However, the group adopted at a younger age had significantly greater improvements in all domains observed.

### *Other Risk Factors*

Parents coping with depression are especially vulnerable to difficulties in establishing warm and nurturing relationships with their children (Knitzer, 2000). Depression has been associated with punitive parenting, as well as with anxiety and aggression in children (Downey & Coye, 1990; Lyons-Ruth, Botein & Grunbaum, 1984). Parents suffering from other mental illnesses or substance abuse (Luthar & Suchman, 1999), or parents who themselves have not experienced nurturing parenting (Barnard, Morisset, & Speker, 1993) may also be at risk of developing poor relationship patterns with their children. As McLoyd (1990) and others (Halpern, 1993; Hardin, 1997) have argued, poverty itself, and the chronic and episodic crises associated with it, may affect parenting, as do community risks such as neighborhoods with high crime rates (Aber, 1994; Gephart, 1997). With early onset conduct disorder, dysfunction starts early and lasts long (Kazdin, 1993; Loeber & Hay, 1994; Lochman & Conduct Problems Prevention Research Group, 1995), with related delinquency and emotional and behavioral problems reaching into adulthood.

Theoretical and empirical research on risk, protective, and resiliency factors adds another dimension to the argument for developing an early childhood mental health system of services. More recent literature confirms and elaborates on the patterns highlighted almost two decades ago by Rutter (1987). Children experiencing two risk factors were four times as likely to develop emotional and behavioral disorders compared to children not exposed to any risk factor or who were exposed to only one. Children with four risk factors were ten times more likely to develop emotional impairment than those with one or none. Risk factors included marital discord, economic hardships, large family size, parental criminality, parental psychiatric disorder, child welfare involvement, lack of prenatal care, substance abuse during pregnancy, poor temperamental fit between parent and child, substantiated abuse or neglect, and out of home placement.

***Protective Factors/Resilience***

The current understanding of resilience and protective factors come from about a dozen longitudinal studies conducted in various geographical areas of the country from Hawaii and California to the Midwest and East. The studies have been done with Asian American, African American, and Caucasian American children (Werner, 2000). Tables 1 and 2 contain these protective factors derived from the various studies, discussed below.

The Kauai Longitudinal Study of 698 Asian and Polynesian children born in 1955 (Werner & Smith, 1989, 1992; Werner, 2000; Werner, Smith & Ruth, 2001) is the largest longitudinal examination of resilience. Data on the children and their families were collected at birth, in the postpartum period, and at ages 1, 2, 10, 18, 32, and 40 years. One-third of the participants, exposed to multiple risk factors including perinatal complications, parental mental illness, family instability, and chronic poverty, developed learning or behavior problems in the first two decades of life. A group of 72, about 10% of the children, who had experienced four or more of risk factors before age two, did not develop emotional or behavioral problems but became competent, confident, caring adults. These children were characterized by their caregivers as very active, affectionate, cuddly, good-natured, and easy to deal with as infants.

The Coping Project of Menninger Foundation (Moriarty, 1987; Murphy, 1987) reported strikingly similar findings. A consistent positive relationship between high levels of energy, easy temperaments, and resilience was noted. Intensive drive and vigor, and responsiveness to people and objects characterized the successful copers in that study.

Farber & Egeland (1987) noted that abused children who were securely attached to an adult tended to be less vulnerable to the detrimental effects of abuse from their mothers when 42 months old. At 42 months, they were more alert and attentive, and more competent in dealing with problem-solving tasks in frustrating situations than children who were insecurely attached. As securely attached babies, they were especially robust, alert, easy to soothe, socially responsible, and able to elicit support from caregivers. Secure attachments were associated with the availability of a caring adult who could be anyone such as a grandmother, older sibling, or neighbor.

**The main commonality among the resilient children in these studies was that they formed bonds with some adult who need not be a parent.** Resilient toddlers in the Kauai Study met familiar adults and strangers (pediatricians and psychologists) on their own terms. During stressful situations, such as a series of developmental tests, they were described as more alert, cheerful, responsive, self-confident, and independent than other children their age. They were also more advanced in communication, locomotion, and self-help skills and engaged in more social play than toddlers who later developed problems (Werner & Smith, 1989).

The risk factors and protective factors discussed in the above studies are outlined in Table 1.

***Table 1. Risk Factors and Protective Factors***

| Risk Factors | Protective Factors |
|---|---|
| Trauma (exposure to violence and/or abuse and/or neglect and/or experience of early loss) | Warm, caring, nurturing, contextually and experientially rich, stimulating environment that provides opportunity for sensory experience and promotes attachment to caregiver |
| Poverty with associated chronic and episodic crises and stressors | Stability, security, and structure; low distress |
| Community risk | Safe community |
| Lack of prenatal care and/or poor prenatal nutrition | Good prenatal care |
| Substance abuse during pregnancy | Close bond with primary caregiver who need not be biological parent |
| Teenage parenthood | Parental competence/education |
| Parental mental illness | Supportive grandparents/Supportive siblings |
| Parental substance abuse | Supportive teachers |
| Parental criminality | Successful school experiences |
| Parents who have not experienced nurturing parenting | Parents with good parenting skills |
| Child Welfare Involvement<br>Out of home placement | Stability; organized, predictable environment with clearly defined structure |
| Large family size (more than four children) | Small family size (less than four children) |
| Marital discord | Family harmony |
| Poor temperamental fit between caregiver and child | Personal characteristics of child: Low emotionality; active, alert, high vigor, drive sociability; easy, engaging temperament (affectionate; cuddly); self-help skills; above average intelligence (language and problem-solving skills) |

***Factors listed from the literature are not intended to be in cause-effect or relationship order***

Werner (2000) noted certain commonalities in the links between protective factors within the individual and outside sources of support or stress. A certain continuity appeared in life courses of the high-risk men and women who successfully overcame a variety of child adversities. **Because data reviewed suggest protective factors may have more**

**effect on children's adaptation than specific risk factors or stressful life events, those protective factors, and the commonalities among studies are delineated separately in Table 2.**

***Nature or Nurture? Or -- Nature and Nurture?***

Werner (2000) categorized protective factors as: "Protective Factors Within the Child," Protective Factors Within the Family," and "Protective Factors in the Community." Werner theorized about the links between protective factors and successful adaptation in high-risk children and youths, purporting that the individual dispositions of the children "led them to select or construct environments that reinforced and sustained their active, outgoing dispositions and rewarded their competencies." (p. 127) This statement seems to weigh more heavily on the side of nature, or genetic predisposition as the stronger determinant of a child's fate in life than nurture, environmental effects. Although few would argue that individuals are not born with genetic predispositions, many would acknowledge that these predispositions can be dramatically altered both positively and negatively by their environments.

Under the first category of "Protective Factors Within the Child," listed on Table 2, the last few factors compare the characteristics of securely attached babies or children to those of children who are not securely attached. These listings demonstrate the difficulty of separating the effects of environmental variables from genetic variables, particularly with correlational findings. Were the resilient children's natural dispositions reinforced as they constructed their environments or did the bonds the children enjoyed with their caregivers shape their personal characteristics, or both? Werner (2000) indicates that with few exceptions the research on resilience and protective factors has focused on children who made it through life on their own or with support from relatives, not children who received early intervention services. As will be seen in the findings of research on early intervention programs discussed later in this review, many of the "Protective Factors Within the Child," such as IQ, problem-solving, communication skills, impulse control, positive self-concept, and low emotionality, can be fostered within the child through well-designed early intervention programs.

***Table 2. Resiliency: Protective Factors***

| **PROTECTIVE FACTORS WITHIN THE CHILD – Internal Resources Individual Brings to Encounters with Stressful Life Events** |
|---|
| Active, high vigor, high activity level, drive |
| At least average IQ, well-developed problem-solving and communication skills; self-help skills |
| Internal locus of control – From repeated experiences in successfully overcoming frustrating situations, either on their own or with help of others, child derives sense of |

| |
|---|
| self-efficacy and confidence that leads to strong belief that they are able to influence their environment positively. |
| Positive self-concept |
| Dominant cognitive style reflective rather than impulsive |
| Assertive and high achievement orientation |
| Able to control impulses and concentrate on schoolwork |
| Assertive, determined, sociable, and independent |
| Low distress/emotionality, easy going, engaging temperament (affectionate, cuddly) |
| Well-liked by peers and adults |
| Resist becoming engulfed in parental psychopathology; show curiosity in understanding what is troubling parent, maintain compassionate but detached approach to parent, and discovered refuge and source of self-esteem in pursuit of hobbies and creative interests with schoolmates or friends |
| Display healthy androgyny in interest and activities and engaged in hobbies and play not narrowly sex-typed. Such activities offer solace in adversity and provide sense of mastery and pride. |
| Strong sense of autonomy with ability to reach out for support from others, especially from teachers and peers |
| Securely attached babies more robust, alert, attentive, and socially responsive than babies not securely attached to a caregiver |
| Securely attached infants, successful in eliciting positive attention from people, were more easily soothed, and able to recover quickly from discomfort than infants not securely attached to a caregiver |
| Securely attached children more alert, attentive, and competent in dealing with problem-solving tasks in frustrating situations than children not securely attached |
| **INTERNAL RESILIENCE IS ENHANCED BY ENVIRONMENTAL FACTORS: Protective Factors within the Family** |
| **Maternal Competence/Education --** Among most powerful protective factors were mother's education and exposure to competent caregiver in first year of life. Role model of a mother gainfully employed after child reached preschool age was potent protective factor for high-risk children. |
| **Affectionate Ties with Alternative Caregivers – Affectional ties that encourage trust, autonomy, and initiative in children are often provided by alternative caregivers.** Children formed important attachments with adults who can serve as powerful buffers who need not be family members, but grandparents and siblings are often cited. |

| |
|---|
| **Grandparents –** Grandparents can play important roles as caregivers and sources of emotional support. As adults, children maintained strong emotional ties. Children with secure attachments to grandparents were more likely to bounce back from negative effects. 3-4 year olds with bonds to grandparents had higher IQ scores. Children attached to both parents and grandparents were more resilient. Children coped well with parental break-up when they had ongoing relationship with grandparents attentive to their needs. |
| **Siblings –** Siblings sources of emotional support, models of commitment and loyalty, fill emotional void left by unresponsive parents, either surrogate parent or supplemental support. |
| **Socialization Practices –** Resilient girls tend to come from homes that combine absence of overprotection, emphasis on risk-taking, and independence, and reliable emotional support from primary caregiver, whether it be mother, grandmother, sister, aunt, or father. Resilient boys appear to come from homes with more structure, rules, parental supervision, and available male who serves as model identification (father, grandfather, older brother, uncle) and where there is encouragement of emotional expressiveness. |
| **Required Helpfulness –** Assigned chores and need to take on domestic responsibilities and part-time work to help support family were sources of strength and competence for resilient children. Productive roles of responsibility, when associated with close family ties, were important protective factors. |
| **Faith: A Sense of Coherence --** Families held religious beliefs that provided stability and meaning in their lives. Faiths, that varied widely, appeared to give children a sense of rootedness, belonging, meaning, and belief that things will work out in the end. |
| **INTERNAL RESILIENCE IS ENHANCED BY ENVIRONMENTAL FACTORS: Protective Factors in the Community** |
| **Support systems in the community reinforce and reward competencies and provide children with positive role models. Among supports are caring neighbors, teachers, mentors, peers, and other friends.** |
| Resilient children tend to be well liked by playmates and classmates and to have one or more close friend to rely on for ongoing emotional support. |
| Association with friends and parents of friend(s) from stable families can help children gain perspective and maintain constructive distance between themselves and their households that may be marred by discord. |
| **School and Successful School Experiences –** Resilient children enjoy school and do well in school. Even if not unusually gifted, they tend to put abilities to good use and make school into home away from home, a refuge with structure and order, separate from a disordered household. |
| **Teachers and Mentors --** Among most frequently encountered positive role models outside family, were favorite teachers who were not just instructors but confidants, positive role models, and buffers against stressors. |

***Implications of Risk and Resiliency Factors for Early Intervention***

What can be drawn from longitudinal studies of resilient children? According to Werner (2000) first, they provide a more hopeful perspective than can be gleaned from reading only the literature on children who succumb to negative consequences of biological insults, caregiving deficits, and ecological stressors. The research gives insight into the self-balancing tendencies that protect children even under persistent adverse circumstances.

When the balance between stressful life events and protective factors is favorable, successful adaptation is possible even for young children living in high-risk conditions. However, when stressful life events outweigh the protective factors, even the most resilient child can develop problems. **Interventions can then be conceived as an attempt to shift the balance from vulnerability to resilience, to decrease exposure to risk factors and stressful life events and increase the number of protective factors (i.e., competencies and sources of support) in the lives of vulnerable children.** Werner (2000) drew the following practice implications from an exhaustive search of the literature:

1) Individual differences among high risk children suggest the need for greater assistance to some than to others.

2) Therefore, if early intervention services cannot be extended to every child from birth to six years of age, programs need to focus especially on infants and young children who appear most vulnerable.

3) Assessment and diagnosis need to focus not only on risk factors but also on protective factors.

4) Research on resilient children has shown repeatedly that if a parent is incapacitated or unavailable, other significant people in a young child's life can play an important role, whether they are grandparents, older siblings, child-care providers, nursery school teachers, or friends. It may make more sense to strengthen available informal ties to kin or community than introduce layers of delivery of services.

5) For any intervention program to be effective, a young child needs enough consistent nurturance within that program to trust in its availability. **Research on resilient children has shown that they had at least one person in their lives who accepted them unconditionally, regardless of temperamental idiosyncrasies, physical attractiveness, or intelligence level.**

6) Research has shown that the promotion of resilience in young children by caring adults does not rely on removing stress and adversity from their lives completely but in helping them encounter graduated challenges that enhance their competence and confidence.

7) Such challenges appear to be most effective for young children in the context of an organized and predictable environment that combines warmth and caring with a clearly defined structure and an established setting of explicit limits that are consistently enforced.

## Rationale

As indicated, social-emotional programs focus on fostering protective factors while minimizing risk factors related to social problems. Most of these programs focus on the development of social skills, problem-solving, emotion recognition and regulation, and social and anger coping skills.

Developmental research has found that early experiences and relationships in the home and preschool are foundations for success in life including how children learn self-regulation skills, their ability to manage emotions, take the perspective of others, and develop close relations (National Research Council and Institutes of Medicine, 2000). Evidence also indicates that children's social and emotional competence, evidenced by more cooperative behavior and less aggressive behavior, is integrally related to cognitive and academic competency manifested in success at school (Raver & Knitzer, 2002). **In addition, evidence suggests intervention for emotional and behavioral problems in young children, such as aggression and antisocial behavior may be less effective after age eight** (Eron, 1990), resulting in increased academic problems, antisocial behavior and school drop out (Snyder, 2001; Tremblay, Mass, Pagani, & Vitaro, 1996).

Overall, national survey data suggest that the incidence and prevalence of problem behaviors in very young children is minimally 10% and perhaps as high as 25% for children of low income families (Webster-Stratton & Hammond, 1998). Preschool teachers cite disruptive behavior problems as the biggest challenge they face. These findings have implications for preventive intervention strategies for mental health professionals, parents, and teachers focused on increasing social and emotional competence in young children.

Socially and emotionally healthy, school-ready children are friendly and confident, have good peer relationships, attempt and persist at challenging tasks, have good language development, communicate well, listen to instructions and are attentive (National Research Council and Institutes of Medicine, 2000). The ability to develop and maintain positive friendships involves a complex interaction of thoughts, feelings, and behaviors. Interacting with peers, solving interpersonal problems, and regulating emotions are skills that contribute to success in making friends (Crick & Dodge, 1994). Socially competent children learn strategies for interacting positively with others during daily experiences at home, school, and in the community. Children with more difficult temperaments including impulsivity, inattention, and hyperactivity and children from disadvantaged backgrounds of abuse and/or conflict may have great difficulty with social skills, conflict management, emotion regulation, and making friends. These children may require more

intensive training to become socially and emotionally healthy, school ready children and to acquire the social competence needed for success in their peer groups.

When these children are taught skills such as how to play with other children, recognize and express feelings, be friendly and talk to peers, exercise self-control, and negotiate conflictual situations, the result is fewer aggressive responses, more friendships, inclusion in peer groups, and increased likelihood of academic success. Development of these skills requires intentional teaching (Bredekamp & Copple, 1997). Over the last 30 years, social-emotional programs have been developed to teach young children these prosocial skills, some of which have been evaluated in peer-reviewed studies.

## Literature Review Purpose

The purpose of this review is four-fold. First, I wanted to identify longitudinal, early intervention programs with efficacy data for young children in order to find general program commonalities. Second, I wanted to identify evaluated, well-defined, formalized social-emotional programs in the literature with efficacy data for preschool children, ages two to six. Third, I wanted to identify the data and judge each formalized program against a set of evaluative criteria. Last, I wanted to determine "best practices" in serving preschool-aged children.

## Literature Review Process

The literature was searched for programs designed for participants under six years of age using several relevant keywords. Databases searched included PsychInfo, BioMed, ERIC, Social Work Abstracts, The Exceptional Child, Expanded Academic ASAP, and other electronic databases. Additional searches were based on references found in articles and books. Government reports were also reviewed. Ten studies were selected and one promising program was identified.

## Results Surrounding Longitudinal Studies of Early Intervention Programs

An ambitious report of the National Research Council and Institutes of Medicine (2000) found the empirical knowledge base on the efficacy of early childhood interventions to be relatively uneven and incomplete. Even though the proportion of studies addressing questions of causality have suffered from inadequate research designs, more than three decades of developmental research and program evaluation found extensive attention paid to cognitive performance. **In contrast, the report found that few evaluations of even short-term outcome data on social adjustment have been undertaken.** Nevertheless, some researchers have argued that the subsequent documentation of differences in progress through school and into adulthood (as illustrated by differential rates of welfare dependence and criminal behavior) reflects a social rather than a cognitive impact (Barnett, 1995; Yoshikawa, 1995).

Yoshikawa (1995) reviewed early childhood programs designed to provide family support to reduce a broad range of child and family risk factors. These programs focused on a variety of outcomes, including IQ and language development. Overall, Yoshikawa reached two conclusions, which are consistent with the research on risk factors: 1) the programs that demonstrated long-term effects on crime and antisocial behavior were those that combined early childhood intervention and family support services, in other words, programs that addressed multiple risk factors; and (2) among the more specialized programs, those designed primarily to serve adults tend to benefit adults more than children, and those designed primarily to serve children tend to benefit children more than adults. **Programs that address multiple risk factors and blend aspects of both family support and early childhood interventions were found to be the most effective.**

Four evaluations, all focusing on programs that combined early childhood education with family support services, assessed long-term effects on parent or teacher ratings of the social factors of antisocial behavior and/or actual delinquency records were isolated as exemplary. All four of these programs, delivered by preschools or social service organizations, demonstrated positive effects. The participants of these studies were selected based on the general principle that disadvantaged families have fewer resources to spend on quality early childhood care and education than do middle- or upper-class families. These participants happened to be African Americans and Mexican Americans.

### *High/Scope Perry Preschool Project (PPP)*

*The High/Scope Perry Preschool Project* (Schweinhart, Barnes, Weikart, Barnett, & Epstein, 1993) is a program that consists of two and one half hours of preschool experience five days a week for seven and one-half months each year for two years. Additionally, teachers visited each mother and child at home for 90 minutes once per week during the school year.

The High/Scope approach emphasizes children's active learning collaboratively based on their interests and choices. Children are provided a wide array of materials and planned experiences that build on their interests and extend their learning. Some of the Infant and Toddler Key Experiences are *Sense of Self* that includes distinguishing "me" from others, solving problems encountered in exploration and play, and doing things for themselves; *Social Relations* that includes forming attachments to a primary caregiver, building relationships with adults, building relationships with peers, expressing emotions, showing empathy toward others, and developing social play; and *Creative Representation* that includes imitating and pretending, exploring building and art materials, and responding to and identifying pictures and photographs (http://www.highscope.org/Educational ProgramsEarlyChildhood/infanttoddkeyexp.htm., 2003).

In the Schweinhart et al. (1993) examination, 123 African American children were randomly assigned to a program or to a control group. The project decreased rates of self-reported delinquency at age 14, official chronic delinquency at age 19, and adult

criminality at age 27. Results indicated that program participants committed fewer delinquent or criminal acts, the acts committed were less severe, and they were less likely to be chronic offenders than were control group members. According to police and court records collected when study participants were 27-32 years old, significantly fewer program-group members than no-program-group members were frequent offenders (arrested five or more times in their lifetimes [7% vs. 35%] or as adults [7% vs. 31%]). As compared with the no-program group, the program group had fewer arrests for adult felonies, significantly fewer arrests for adult misdemeanors, and fewer juvenile arrests. As compared with the no-program group, the program group had significantly fewer arrests for drug-making or drug-dealing crimes (7% vs. 25%).

### *Syracuse University Family Development Research Program (SUFDR)*

The *Syracuse University Family Development Research Program* (Lally, Mangione, & Honig, 1988) provided educational, nutrition, health and safety, and human services resources to 108 low-income, primarily African American families, beginning prenatally and continuing until children reached elementary school age. Families received weekly home visits and quality child care (one-half day five days a week for children 6 to 15 months of age, and full-day care five days a week for children 15 to 60 months of age).

Results for the Syracuse program were similar to those obtained by the High/Scope project: the program decreased the total number, severity, and chronicity of later involvement with the juvenile justice system among participants. At follow-up, when children were 13 to 16 years old, four program group children (of 65 who were identified at follow-up from the original program group of 108) had probation records. Three were status offenders who had been deemed ungovernable, and the fourth was a one-time juvenile delinquent. In contrast, 12 control group youths (of 54 found from original control group of 74) had probation records. Five of the 12 control group youths were chronic offenders. Among the offenses committed by the 12 were robbery, burglary, sexual assault, and physical assault.

### *Yale Child Welfare Project (YCWP)*

*The Yale Child Welfare Project* (Seitz & Apfel, 1994) recruited 17 pregnant, low-income, primarily African American women to participate in an intensive program that began during pregnancy and continued until the children reached 30 months of age. Families received free pediatric care, social work, child care (an average of 13.2 months), and psychological services as needed. Each family interacted with a four-person team: a pediatrician, a home visitor, a primary child care worker, and a developmental examiner. The team members remained constant over the course of the family's enrollment in the project.

YCWP decreased boys' antisocial behavior as rated by teachers and increased the number of children with good school adjustment for both boys and girls 10 years after program services ended. Teachers rated boys who had been in the program group as being socially well adjusted. Most of the comparison group boys were described as disobedient or not getting along well with other children, and slightly more than half were also described as having problems with lying or cheating.

### *Houston Parent Child Development Center (PCDC)*

*The Houston Parent Child Development Center* (Johnson & Walker, 1987) was designed to promote social and intellectual competence in children from low-income, Mexican American families. It required approximately 550 hours of participation over a two-year period. Mothers received 25 home visits for one year, beginning when their children were one year of age. Weekend sessions involving the whole family focused on issues such as decision making in the home, family, or community. During the second year of the program, mothers attended classes to learn about child development, home management, and other family-related topics. Their children attended educational preschool four half days per week.

Results of study with 37 female and 44 male participants indicate that PCDC decreased children's antisocial behavior as rated by parents in a one-to-four year follow-up and as rated by teachers in a five-to eight-year follow-up. In the five-to-eight year follow-up, teachers rated control group children as more obstinate, impulsive, disruptive, and involved in fights than program group children. Program group children were rated as more considerate and less hostile. A more recent follow-up did not find significant effects on antisocial behavior, but attrition rates were quite high.

### *Possibilities about Causation across Four Studies*

Yoshikawa (1995) suggested that the posttest and short-term follow-up evaluations of the four programs provide clues as to what led to differences in later antisocial or delinquent behavior. Positive effects on cognitive and/or verbal ability and parenting preceded long-term effects on delinquency and antisocial behavior. According to Yoshikawa (1995), this observation is consistent with the view that long-term effects on delinquency occurred through prior effects on early risk factors such as cognitive ability and parenting skills. Additionally, three of the four programs (Yale, Houston, and Perry) assessed effects in two separate domains of risk and found some positive effects in both domains (the cognitive effects were mixed for the Yale and Houston programs). These findings bolster the notion that risk factors for delinquency can have a cumulative effect. Children buffered from multiple risks are less likely to engage in later delinquency than children buffered from just one risk.

### *Common Characteristics across Four Studies*

#### *Scope and Intensity*

The programs provided both quality educational care for children and support to adults in peer group and family settings. Each of the individual components was intensive. Visits were made to homes of families weekly to monthly and ranged from a total of 25 to 60. The early childhood component ranged from half-day summer sessions to full-day sessions, usually four or five days a week.

#### *Quality*

The four programs with long-term effects on antisocial behavior and/or delinquency were high quality programs. They had strong theoretical bases for their center-based and home visiting curricula; most curricula emphasized the initiation and planning of activities by the child rather than the teacher; home visitor-to-family ratios were generally 1 to 10 or better; staff-child ratios in infant/toddler educational child care were in the range of one adult to three or four children, and one to six in preschool programs; pre-service and in-service training was extensive and supervision was ongoing.

#### *Populations Served*

Although none of the four programs had the prevention of antisocial behavior and crime as their stated purpose, the areas that, in fact, have highest crime rates – urban low-income communities – were targeted in all four programs. These areas and participants were not selected based on risk for delinquency, but rather on the more general principle that disadvantaged families have fewer resources to spend on quality early childhood care and education than do middle- or upper-class families.

## Rationale for Examination of Evaluated Formalized Programs

In light of the number of social service/mental health and preschool programs serving young children, the lack of evaluated formalized programs is staggering. Therefore, this review sought to find specific programs with empirical findings in order to determine evidence-based “best practices” for serving children. The remainder of this review is dedicated to that purpose.

## Methodology Surrounding Examination of Formalized Programs

I reviewed all the studies of the eleven programs considered according to the following evaluative criteria:

1) True experimental design
2) Replication of findings
3) Studies conducted with preschool-aged children
4) Fidelity monitoring
5) Effect maintenance
6) Curriculum Manual

Together, the above criteria were considered a measure of the desirability for adoption of the program in the field. Based on the criteria, each program was given an estimated degree of confidence -- high, medium, or low, according to the number of criteria met. A high confidence rating was given if six criteria were met; a medium rating was given if five criteria were met; and a low rating was given if three criteria were met.

## Results of Formalized Social-Emotional Early Intervention Programs

Table 3 contains descriptions of the ten studies and one promising program including author, year, name of the program, description of the program, and outcomes. **Original research with the oldest dates is cited in the tables and more recent replication studies, with subsequent dates, are discussed in the review narrative.** Table 4 on page 30 gives an overview of how each of the ten social-emotional programs was rated according to the criteria inclusion established.

Project Head Start, the largest nationwide early intervention program established for children of poverty, can foster many of the protective factors that have brought about positive changes in the lives of at-risk children. Due to this history of Head Start, most early interventions programs have been based at Head Start locations. **The programs examined in this review have been delivered and evaluated in various settings during different evaluations. The programs have been delivered in preschool settings, in preschool settings where mental health consultants were involved, and in social service mental health settings. Often, programs are joint efforts of preschools such as Head Start and mental health social service agencies. The program components can be generalized to many contexts. Therefore, terms such as teacher, facilitator, case manager, or therapist can be used interchangeably.**

***Table 3. Summary of Social-Emotional Program Research Studies***

| Program | Authors | Participants | Program Description | Study Design | Findings |
|---|---|---|---|---|---|
| First Step to Success | Walker, H. M. (1998) | Kinder-garten children | Combination home and school intervention approach to prevent antisocial behavior. Intervention requires 2-3 months and is applied to one child at a time in classroom setting. | True Experi-mental | Significantly* increased adaptive skills and academic engagement time; decreased aggression |
| The Incredible Years Dinosaur Treatment Program | Webster-Stratton, C. (1990b) | Children ages 4-7 with conduct problems | 22 two-hour sessions with 5-6 children in clinical setting. Children are taught social and problem-solving skills by use of video modeling, role plays, activities, and puppets. | True Experi-mental | Significantly* increased parent-child interactions, child social problem solving, and conflict management; decreased problem behavior |
| Al's Pals: Kids Making Healthy Choices | Geller, S. (1999) | Pre-school children, ages 4-5 | Two components: teacher training and a resiliency-based preschool curriculum implemented by trained teachers or facilitators; 43 lessons, 20 minutes each. | True Experi-mental | Significantly* decreased problem behavior |
| I Can Problem Solve | Shure, M. (1972) | Pre-school children, ages 4-5 | 12-week intervention using a variety of sequenced games, discussion, and group-interaction techniques; dialoguing used to provide opportunities for children to exercise problem-solving skills. | True Experi-mental | Significantly* increased generation of solutions & consequences and adjusted behavior; decreased inhibited and impulsive behavior |
| DARE to Be You | Miller-Heyl, J. (1998) | Preschool children, ages 2-5 | 24 hours of parent training with follow-up support; children's curriculum emphasizes decision making, problem-solving skills, responsibility for one's own behavior, and esteem for self. | True Experi-mental | Significantly* increased developmental levels; decreased oppositional behavior |
| PALS: Develop-ing Social Skills Through Language Commun-ication Skill Builders | Vaughn, S. (1986) | Preschool children, mean age 5 yrs., 4 mos. | 50 interpersonal problem-solving training sessions present 140 lessons to children over 10 weeks. Components include language concepts, empathy, goal identification, generating alternatives, evaluating consequences, due sensitivity, and rehearsal. | True Experi-mental | Significantly* increased solutions to interpersonal problems. No difference in empathy |
| Living With a Purpose: Self-Determ-ination | Serna, L. (1999) | Pre-school children, ages 3-5 | 12-week intervention implemented by two 3-hour sessions each week in the classroom. Intervention is composed of three adaptive skill areas: 1) following directions, 2) sharing, 3) problem solving. Skills are demonstrated to children through use of stories and opportunities to act out skills. | Quasi-Experi-mental | Significantly* increased adaptive skills; decreased problem behavior, inattention & overactivity |

| Program | Authors | Participants | Program Description | Study Design | Findings |
|---|---|---|---|---|---|
| Social-Emotional Interven-tion for 4-Year-Olds at Risk | Denham, S. (1996) | Pre-school children, age 4 | Relationship building through "floor time;" lessons in understanding and regulating emotions; 32 week intervention/4 days per week | Quasi-Experi-mental | Significantly* increased peer skills and social skills; decreased negative emotions |
| Second Step | Commit-tee for Children (1989) | Second and third grade students | 50-minute lessons, two times a week. Uses 11" x 17" photo lesson cards. Facilitator shows cards and follows lesson outline on the reverse of the card. Lesson techniques consist of discussion, modeling skills, and role-plays. | True Experi-mental | Significantly* decreased physical aggression, and hostile and aggressive comments; increased prosocial & neutral behavior |
| PATHS: Promoting Alternative Thinking Strategies | Kusche, C. A. (1994) | First-sixth grade students (general educa-tion special educa-tion, & deaf/ hearing impaired) | Delivered three time per week for minimum of 20-30 minutes per day, systematic, developmentally based lessons, materials, and instructions for emotional literacy, self-control, social competence, positive peer relations, and interpersonal problem-solving. | True Experi-mental | Significantly* increased self-control; ability to tolerate frustration, understanding and recognition of emotions; effective conflict-resolution strategies; thinking & planning skills; decreased anxiety/depression; and conduct problems, including aggression |
| **Promis-ing Program** | **Authors** | **Partici-pants** | **Program Description** | **Study Design** | **Findings** |
| Neurose-quential Model of Thera-peutics (NMT) | Barfield, S. T. & Gaskill, R. L. (2003 & 2004) | Preschool children, ages 2-5 | Joint project of preschool and mental health center delivered four days per week, based on brain development research, neuroarcheological assessment, and activities that promote identified areas of the brain to promote success related to social problem solving, emotion regulation, helpfulness, fair assertiveness, impulse modulation, cooperation, and empathy. | Pre Experi-mental Pre/ Post and Quasi-Experi-mental | Significantly* increased overall social and emotional development, emotion regulation, helpfulness, fair assertiveness, impulse modulation, cooperation, & empathy. |

** Statistically significant ($p < .05$)*

The programs examined in this review are as follow:

### *First Step to Success*

*First Step to Success (FSTS)* (Walker, Kavanaugh, Stiller, Severson, & Feil, 1998) was originally designed as an early intervention program for at-risk kindergartners showing early signs of antisocial behavior such as aggression, severe tantrums, victimizing others, and/or being oppositional-defiant. This program consists of three modules: 1) Proactive screening of all kindergartners, 2) school intervention involving teacher, peers, and target child, and 3) parent/caregiver training for positive adult support. The goal of FSTS is to divert kindergartners from antisocial behavioral directions.

This intervention approach consists of a school module and a home-based module. The school module has three successive stages. The most critical phase, the *consultant phase*, begins with two 20-minute periods daily, during which the mental health consultant closely monitors a child's classroom behavior using a red and green card on which one point is awarded every 30 seconds. If the child's behavior is appropriate when the award interval occurs, the point goes on the green side of the card; if not, it goes on the red side. To meet the criterion for this phase, a minimum of 80% of points have to be awarded on the green side. If the reward criterion for both morning and afternoon sessions is met, the child earns a home privilege. The interval in which points and praise can be earned is gradually extended from 30 seconds to 10 minutes. Use of the card is phased out completely by program day 15.

The *teacher phase* is operated by the classroom teacher with close supervision and support by the program consultant. The teacher phase, includes (a) awarding praise and points, (b) supervising the group activity and giving rewards, and (c) communicating with parents regularly.

The *maintenance phase* lasts from day 21 to 30 after which the school intervention is terminated. In this final phase, the child is rewarded primarily with praise and expressions of approval/recognition from teacher, consultant, and parents.
The *home intervention module* consists of six lessons designed to enable parents and caregivers to build their children's competencies and skills in six areas as follow: (a) communication and sharing in school, (b) cooperation, (c) limit setting, (d) problem-solving, (e) friendship making, and (f) development of confidence.

The *home-based module*, that contains lessons, instructional guidelines, and parent-child games and activities for directly teaching skills, requires six weeks and begins after the child has completed program day 10. The program consultant visits the family home weekly for one hour to cover lessons, leave materials, and encourage parents to work with their children 10 to 15 minutes daily.

Children randomly assigned to either the treatment or control group were identified through multistage screening. Of the at-risk kindergartners, 33% were receiving

supplemental school services, 37% were members of families with low incomes eligible for either free or reduced-rate lunch, and 11% were screened as eligible for special education. Children receiving FSTS showed significant improvement on four post-test measures compared to the control group. Children in the experimental group demonstrated significant improvement in adaptive behavior, reduced maladaptive behavior, and reduced aggressive behavior as rated by teachers. These children also significantly improved academic engaged time per observer rating compared to the waiting list control group. These findings have been replicated (Golly, Stiller, & Walker, 1998 and Golly, Sprague, Walker, Beard, & Gorham, 2000).

FSTS met all of the established criteria.

### *Incredible Years Child Training Program (Dinosaur Treatment Program) (DTP)*

*Dinosaur Treatment Program* (Webster-Stratton, 1990b) focuses on skills such as emotional literacy, empathy or perspective taking, friendship skills, anger management, interpersonal problem solving, school rules, and how to be successful at school. DTP is used as a "pull out" treatment program for small groups of children demonstrating conduct problems and takes place as 18 to 22 weekly two-hour sessions in a clinical setting.

The *Aatosaurus and Iguanodom component* promotes "How to Do Your Best in School." Initial group sessions focus on group rules such as following directions, keeping hands to selves, raising a quiet hand, and using a polite and friendly voice. Rules are demonstrated, role played, and practiced with puppets. Incentive "dinosaur chips" are given for following rules. Two of the most important Dinosaur rules are "using words to express feelings" and "using gentle touch." Time outs are framed as time away to think and calm down. Low level whining and wiggling are ignored.

The *Dina Triceratops component* focuses on "Understanding and Detecting Feelings." After identifying feelings, children are encouraged to talk about them, think differently about events, respond appropriately in social situations, and employ self-talk and relaxation to calm and modulate emotions. Next, children use their detective skills to recognize feelings of others. Aides such as video vignettes, photos, pictures, games, nursery rhymes, songs, and books are used.

During the *Stegosaurus component,* "Detective Wally Teaches Problem-Solving Steps." Children learn a seven-step problem-solving process that includes how they are feeling, what the problem is, what a solution is, more solutions (brainstorming), consequences, best solution (safe? fair?), can plan be used, and self-assessment. Role play, puppets, cards, coloring, and games such as "fishing" for solutions are used.

In the *T-Rex component* "Detective Wally Teaches Problem-Solving Steps," that include recognizing anger, thinking "stop," taking a deep breath, going into a shell to say "I can

calm down," and trying again. Children learn to recognize physiological signals, then use self talk, deep breathing, and positive imagery.

In the *Allosaurus and Brachiosaurus component* "Molly Manners Teaches How to Be Friendly." Children are taught friendly behaviors such as sharing, taking turns, asking, making suggestions, apologizing, agreeing with others, and giving compliments (Webster-Stratton & Reid, 2003).

Therapists use child-size boy and girl puppets to model appropriate behavior for the children. A dinosaur puppet (Dina Dinosaur) teaches about rules and gives rewards and praises. The puppets, Wally and Molly, help narrate video vignettes and help children with conflict situations they have encountered. Additional activities and methods are described by Webster-Stratton & Reid (2003).

Two randomized control group evaluations of DTP indicated significant increases in the problem-solving and prosocial conflict management with peers, increased social competence and appropriate play skills, and reduced conduct problems at home and school. Program evaluations included home and school direct behavior observations by unbiased evaluators and teacher and parent reports on standard measures. Findings have been replicated in three randomized studies by independent investigators with different ethnic populations (August, Realmuto, Hektner, & Bloomquist, 2001; Barrera, Biglan, Taylor, Gunn, Smolkowski, Black et al., 2002; Taylor, Schmidt, Pepler, & Hodges, 1998). Additionally, DTP was replicated with preschool age children in Norway (Morch, Clifford, Larsson, Drugli, & Fossum, 1998).

DTP is currently being implemented universally in Head Start. As a universal intervention, the program is implemented for a whole class with 60 lesson plans delivered one to three times a week in 45-minute class periods. Independent observations of 628 children in classrooms showed significant differences between children in the experimental group and control group on variables such as compliance, social contact, and aggressive behavior. The experimental group had significantly greater positive classroom atmospheres than the control group, and the experimental group had significantly higher school readiness scores as measured by behaviors such as being focused and on task and showing concentration.

DTP met all six of the established criteria.

### *Al's Pals: Kids Making Healthy Choices (AP)*

*Al's Pals: Kids Making Healthy Choices* (Geller, 1999) is a resiliency-based substance abuse and violence prevention program that consists of two major components that can be delivered in school and/or social service mental health settings: 1) a series of facilitator training sessions and 2) a resiliency-based curriculum implemented by training facilitators. Facilitator training sessions focus on enhancing knowledge of the effects of substance abuse and violence on child development; skill building in guiding children's

problem solving, communication, decision making, and prosocial behavior; and introductory resiliency-based prevention strategies. AP is a 43-lesson program that introduces substance abuse and violence prevention strategies to young children. The lessons use games, creative play, puppetry, children's books, color photographs, and original songs to convey health-promoting concepts and prosocial life skills. During the 20-minute lessons, facilitators introduce children to key concepts, which are reinforced in naturally occurring situations throughout the day.

Two studies evaluated AP. The longest study (Dubas, Lynch, Galano, & Geller-Hunt, 1998) examined program effects over one school year. At posttest, children in the experimental group showed improved resiliency-related skills, such as social skills and problem-solving, and decreased negative coping behaviors. In two studies (Dubas et al., 1998; Lynch, Geller, & Schmidt, in press) facilitators also reported increased positive coping behaviors and social interaction skills, decreased social withdrawal and reduced aggressive behavior.

The Dubas et al. (1998) study has limitations. First, sites with highly skilled facilitators were selected as intervention locations. Second, a discrepancy existed in the education and training backgrounds of facilitators in the intervention group versus the control group. Third, changes in the children's behavior were only measured by facilitator report. Fourth, the facilitators who were filling out the reports were also administering the intervention.

AP met five of the six established criteria. The program did not demonstrate effect maintenance.

### *I Can Problem Solve (ICPS)*

Various programs have been developed to teach young children interpersonal problem-solving skills that include "reading" the cues of others, taking others' perspective, and generating solutions to problems. Spivack, Platt, & Shure (1976) developed the widely used social skills program *I Can Problem Solve.* ICPS is implemented over 12 weeks using a variety of sequenced games, discussions, and group interaction techniques.

The *purpose* of the ICPS program is to teach children thinking skills that can be used to help resolve or prevent "people" problems. The program *focuses* on guiding children to think for themselves, to evaluate their own ideas, and come up with many solutions to problems. The *content* includes pre-problem solving skills that promote learning a vocabulary, identifying one's own and others' feelings, considering other people's point of view and learning cause and effect; and problem-solving skills that include thinking of more than one solution, considering consequences, and choosing a solution. The *delivery method* includes teaching skills through the use of games, stories, puppets, and role playing, guiding the use of skills in real-life situation, integrating ideas into cognitive skills, and parent participation. *Intended benefits* include fun for the children; building self-confidence and listening skills; encouraging generation of alternative solutions;

developing skills to handle new problems; facilitating peer social interactions; increasing sensitivity to others (sharing and caring); and increasing independence, ability to wait and cope with frustration while decreasing impulsivity and social withdrawal (Shure, 2000).

Shure & Spivack (1979) found four and five-year-old disruptive children can be taught to generate alternative solutions to interpersonal problems, measured on hypothetical reasoning problem-solving situations, resulting in better behavioral ratings by teachers (Shure & Spivack, 1979, 1980, 1982; Shure, Spivack, & Jaeger, 1972). Children also generated more consequences to solutions. There have been numerous replications of these studies. Two studies demonstrated a decrease in problem behaviors such as acting out and impulsivity as measured by teacher behavior rating scales (McPhee,1994; Shure & Spivack, 1980). However, hypothetical reasoning problem-solving situations and rating scales as measures is a limitation of their work since children's ability to solve hypothetical dilemmas does not necessarily generalize to behavioral competence in real life social situations. Feis & Simons (1985) found no significant decrease in aggressive acts in the experimental group compared to the control group when using behavioral observations.

ICPS met five of the six established criteria. The study did not monitor model fidelity.

### *DARE to Be You (DTBY)*

*DARE to Be You* (Miller-Heyl, MacPhee, & Fritz, 1998) is a multilevel, primary prevention program for children ages two to five. The program consists of family, school, multi-agency teams, and community components. The family component offers parents, youth, and family training activities for teaching self-responsibility, personal and parent efficacy, communication and social skills, and problem-solving and decision-making skills. Sessions include 30-minute joint activity for parents and children and time to practice skills learned during the sessions. Parents attend a 12-week family workshop series (30 hours) and a 12-hour workshop held semi-annually to reinforce the concepts. The school component is designed to train and support teachers and childcare providers. The community component trains community members such as health departments, child protection agencies, and/or probation officers who interact with target families. The school and community components have a 15-hour training requirement.

A manual for the parent-child workshops outlines a series of activities for parents and children designed to develop the following specific skills based on different theories: *Improve self-efficacy and self-esteem*. Effective parents tend to be psychologically well-adjusted, which includes healthy self-appraisals. They are warmer, less irritable and critical, and use more effective, democratic child-rearing practices. Conversely, parents' low self-esteem is consistently related to child maltreatment. Activities were designed to enhance positive self-appraisals (parents describe to each other successes they had with their children during the week), improve self-talk, and help children define positive characteristics and cope with negative messages.

*Increase internal locus of control*. At-risk families often feel powerless, perhaps due to poverty and/or dependence on governmental systems. Activities to help empower parents include using "feeling" words, problem-solving, and making choices.

*Enhance decision-making skills through effective reasoning.* Parents who blame themselves for child-rearing difficulties often experience decrements in self-esteem. Parents who make accurate causal attributions for children's behavior tend to be less frustrated and angry and less punitive or even abusive. Various activities teach parents and children how to determine desired and potential outcomes, do risk analyses, negotiate, and resolve conflict.

*Master effective child-rearing strategies, particularly communication skills* that foster children's self-efficacy, decision making, and problem-solving skills. Activities include tower building to recognize different parenting styles, use of democratic child-rearing strategies, understanding how children learn from role models, and role plays of communication techniques.

*Learn stress management.* High levels of stress, particularly from economic problems, contribute to psychological distress, irritability and punitive child rearing. Participants are taught to recognize stress triggers and how to manage stress.

*Learn developmental norms* to reduce frustration with children's behavior and increase empathy.

*Strengthen peer support.* At-risk families often feel isolated because of social conditions, such as living in high-risk neighborhoods. Parents who receive more social support tend to be more responsive to their children. Therefore, parents are encouraged to increase support networks and/or support groups are offered.

A separate component is utilized for children and a special program was devised for older siblings. Infant care is available. Monetary incentives are used to encourage family participation. Trained teenage caregivers are constant companions assigned to children (Miller-Heyl et al., 1998).

Over a five-year period, cohorts of families with children ages two to five were randomly assigned to control (n = 301) and experimental (n = 496) groups (Miller-Heyl et al., 1998). Parents completed pretest, posttest, and two-year follow-up surveys of parent satisfaction with support systems and self-efficacy, use of harsh punishment; child self-management; and family communication. Teachers and childcare providers completed pretest and posttest program surveys on child development and problematic child behavior. There were no direct behavioral observations of the children and parents. Community agencies also assessed the relevance of the program. Evaluation data revealed significant outcomes including persistent increases in parental self-appraisals and democratic child-rearing practices, with a corresponding decrease in harsh discipline. Parent satisfaction with social support increased; target children's developmental levels were enhanced and oppositional behavior declined.

DTBY met five of the six established criteria. Study findings had not been replicated.

### *PALS: Developing Social Skills through Language, Communication Skill builders (PALS)*

The purpose of the PALS program (Vaughn, Ridley & Levine, 1986) is to teach children an interpersonal problem-solving process for successfully interacting with others. The components include language concepts, empathy, goal identification, generating alternatives, evaluating consequences, cue sensitivity, and rehearsal. Each session consists of a skit with puppets that teach and model a skill, questions about the puppet's behavior, children's role-playing problem situations, and practice of skills. Experimental group participants were given the training procedure for 20 minutes per day, five days per week, for ten weeks, for a total of 50 training sessions. The control group participated in reading story sessions during the same time period. Twenty-five children from two preschools who were identified as aggressive participated in the study. Participants were randomly assigned to an experimental group or a control group. There were 13 children in the experimental group and 11 in the control group. The authors reported significant increases in the ability to generate relevant solutions to interpersonal problems at posttest, indicating the children possessed a more expanded repertoire of solutions for solving interpersonal problems. Posttest and follow-up results also indicated that experimental group children, compared to the control group, were less likely to engage in irrelevant talk and more likely to respond to the problem-solving task.

Ridley & Vaughn (1982) built on interpersonal problem solving to develop a program with additional behavioral and empathic components. Several randomized experimental studies of their problem-solving program have had mixed results. One study (Ridley & Vaughn, 1982) found increases in the number of solutions to real-life peer problems but no change on a measure of empathy. Another study (Vaughn & Ridley, 1982) found a significant effect on positive verbal and nonverbal peer interactions but no difference in decreasing negative interactions. Vaughn, Ridley, & Bullock (1984) found an experimental group of aggressive children was able to generate more alternative solutions to interpersonal problems with a peer at both posttest and follow-up. These studies are limited by small, vaguely described samples and ambiguous data collection processes.

PALS met five of the six established criteria. Fidelity to the program model was not monitored.

### *Living With a Purpose: Self-Determination Curriculum (LWAP)*

The self-determination approach utilizes skill building to focus on activities that assist children in giving input into the decisions that affect their lives. This program is based on research showing that many youth at risk for failure lack skills that allow them to be resilient against life barriers: make choices regarding their learning; be socially appropriate and good friends with peers and adults; solve problems during times of crisis;

and direct their lives by managing their own behaviors, goals and life outcomes (Hoffman & Field, 1995; Serna, 1997). Serna, Nielsen, & Forness (1999) developed the *Living with a Purpose Self-Determination Program* for three to five-year-old children. The intervention duration is 12 weeks, with two three-hour sessions per week, and addresses three adaptive skill areas: following directions, sharing, and problem-solving. Forness, Serna, Kavale, & Nielsen (1998) found problem behaviors of the experimental group decreased from pretest to posttest while the control group demonstrated increases in problem behaviors. Behavioral observation revealed increased adaptive skills, increased social interaction, and decreased maladaptive behavior. No significant effects were found on aggression or noncompliance. Limitations of this study include lack of random assignment, no data collection of implementation fidelity, and a relatively small sample size. A strength of LWAP is its attention to cultural diversity. The intervention is available in both Spanish and English.

LWAP met two of the six established criteria. The research was not a true experimental design, findings had not been replicated, fidelity to the model was not monitored, and enduring effect was not demonstrated.

### *Social-Emotional Intervention for 4-Year-Olds at Risk (SEI)*

Denham & Burton (1996) developed an interpersonal problem-solving intervention with additional components that address attachment, relationship building, and the ability to recognize and label emotions. The 32-week program consists of activities derived from several sources and is prescribed for a four day per week schedule. Participating children displayed decreased negative emotions (anger, hostility, sadness) as well as increased peer skill and productive involvement over the intervention period measured by direct observation. Facilitators saw children improve socially as measured on a questionnaire. Although results are encouraging, the study design had several methodological limitations, most notable of which was no random assignment and observers were aware of assignment conditions.

SEI met three of the six established criteria. A true experimental design was not utilized, findings had not been replicated, and there was no evidence for enduring effect.

### *Second Step (SS)*

Grounded in social learning theory (Bandura, 1986), *Second Step* emphasizes the importance of observation, self-reflection, performance, and reinforcement in the acquisition and maintenance of desired behaviors. SS teaches competence in empathy, social problem solving, and impulse control skills to prevent psychosocial problems and reduce problem behaviors such as aggression. SS is based on research indicating that competence in empathy, social problem solving, and impulse control buffers children from risks (Cavanaugh, Lippitt, & Moyo, 2000). SS is a violence prevention program with the dual goals of reducing the development of social, emotional, and behavioral

problems and promoting the development of core competencies. Teachers or counselors deliver the program. Each 35 minute lesson (30 lessons total) is typically presented twice a week. Lessons are structured around large black and white photo cards depicting children in various social-emotional situations. The reverse side of the card provides cues for facilitators, such as key concepts, objectives, and suggested lesson scripts. Facilitators read the lesson story accompanying the photographs and guide group discussions.

These photographs are accompanied by a social scenario that forms the basis for discussion, role plays, and conceptual activities. Lessons are arranged in three units: (1) empathy training in which students identify their own feelings and those of others, take others' perspectives, and express care and concern; (2) impulse control, in which student are presented a problem-solving strategy and behavioral skills for affecting solutions (e.g., apologizing or dealing with peer pressure); and (3) anger management, in which children are presented a coping strategy and behavioral skills for tense situations (e.g., making a complaint or responding to an accusation). Role playing, including modeling of skills, child skill practice, feedback, and reinforcement for appropriate skill use is critical.

Results of a true, experimental pre-post study (Grossman, Neckerman, Koespell, Liu, Asher, & Beland, 1997) with 790 children in the first and second grades, indicated that physical aggression decreased from autumn to spring among children in the experimental group. In contrast, physical aggression increased among children in the control group. Six months later, children in the experimental condition continued to show lower levels of aggression. Hostile and aggressive comments also decreased over the year in the SS group while observed as increasing in the control group. Friendly behavior, including prosocial interactions increased in the SS group but remained constant in the control group. Six months later, children in the SS group maintained the higher levels of positive interaction.

Currently SS is being evaluated as part of a larger intervention, the Preschool Behavior Project (Bryant & Kupersmidt, 2002) but there is no published data to date on the efficacy of SS with preschoolers.

SS met three of the six established criteria. Findings had not been replicated and it is not clear if a program manual is available. Although a study is underway to test the program with preschool-age children, findings are not available as of this writing.

### *PATHS: Promoting Alternative Thinking Strategies (PATHS)*

*PATHS* (Kusche & Greenberg, 1994) consists of 30 to 45 lessons delivered over one year designed to promote social and emotional competence, prevent violence, aggression, and other behavior problems, and improve critical thinking skills.

PATHS offers opportunities for children to practice identifying a wide range of feelings and associated physiological sensations, calming themselves through breathing

techniques, and taking others' perspectives while solving interpersonal problems using an 11-step model. Systematic opportunities are provided for children to apply competencies beyond the lesson. Instructional strategies include class meetings to resolve conflicts.

PATHS focuses on helping children gain better self control, as requisite for being able to participate in the remainder of the program. The first unit addresses self-control through the Turtle Technique (Schneider, 1974) that consists of a series of structured lessons accompanied by a reinforcement program. This technique is unique both because it teaches self-control in interpersonal, rather than in academic/cognitive domains and because it includes a system for generalization throughout the day. Through a series of lessons, children are told a metaphorical story about a young turtle who had both interpersonal and academic difficulties that arise because she or he does "not stop to think." These problems are manifest in the young turtle's aggressive behavior, which are related to numerous uncomfortable feelings. With the assistance of a "wise old turtle," the young turtle learns to develop better self control, which involves going into his or her shell. The script for the Turtle Story is accompanied by eight drawings, which illustrate each section of the story. Parents are involved in various ways.

A three-volume curriculum covers the following topics: recognizing feelings of self and others, steps for calming down (saying STOP, taking deep breath), promoting alternative thinking strategies, social skills such as manners, and replacing negative feelings and thoughts with positive feelings and thoughts (Kusche & Greenburg,1994).

Three studies have addressed the technique with randomized control groups: one with children who are typically developing, one with children who are special education-classified, and one with children who are deaf/hearing impaired.

Two published studies (Conduct Problems Prevention Research Group, 1999; Greenberg & Kusche, 1998) examined this program. The intervention duration was up to one year, the longest follow-up was four to five years. Positive social-emotional outcomes were reduced aggression and hyperactive-disruptive behavior among first graders in general education classes.

Currently PATHS is being used as a universal prevention program with random assignment for preschoolers in 10 Head Start classrooms in urban, semi-urban, and rural areas (Domitrovich, Cortes, & Greenberg, 2002). Preliminary findings suggest improved social competence according to multiple reports and direct child measures and significant effects on internalizing symptoms. However, no significant reductions in externalizing behavior were reported. There is no published data to date on the efficacy of PATHS with preschoolers.

PATHS met five of the six established criteria. Although the program is currently being used with preschoolers, no study findings with the age group are currently available as of this writing.

The promising program is as follows:

### *The Neurosequential Model of Therapeutics (NMT)*

*The Neurosequential Model of Therapeutics (NMT),* based on brain development research (Perry, 2000) and designed by Perry (2004), makes use of a number of techniques from many sources. Each of these activities promotes organization, regulation, and development of neural networks needing enrichment, allowing the mastery of developmental issues. The model techniques are recommended based on an individualized neurosequential archeological assessment completed on each child starting therapeutic services.

According to knowledge of brain development, social and emotional maturity is requisite to good cortical functioning. This understanding places emphasis on sound regulation of lower brain level functioning as a prerequisite to academic success. Expecting children to perform in an academic environment before they are able to do so, can be detrimental in many ways. Therefore, one focus of NMT is to first promote social and emotional development among children.

NMT is a complex model, which does not lend itself to step-by-step, didactic explanation. Extensive staff training is needed to deliver the model with fidelity. Therefore, in this review, the model is described rudimentarily.

The neuroarcheological assessment specifies repetitive, patterned enrichment activities for each neurosquential level (brainstem, midbrain, limbic). The enhancements are carried out with a high degree of frequency both at school and at home. Based on interactional theory and knowledge of the vital role parents play in brain development as children experience their environments, parents actively participate by carrying out the same enhancement activities in the home that are used in the therapeutic preschool program. Caution is taken not to exceed the social-emotional functional ratio for each child until success has been firmly established at the lower levels. The mental health therapist also integrates this information into the individual therapy and family treatment plan, often as activities parents do with their children. The treatment program is predicated on the assumption that the sequential neurological development and resultant neuroregulatory organization is essential to the overall success of the child's functioning and allows other interventions to be more successful.

Interactions and interventions are conducted in a hierarchical manner and are strengths-based, starting where the child's is according to developmental stages rather than age. These interventions may include 1) stimulation of the senses, aiding self-regulation, calming activities, assisting motor regulation development at the midbrain level; 2) emotion regulation, social communication, and complex motor movement at the limbic level; then, 3) social-emotional competence and cognitive functioning at the cortical level. The primary process activities are conducted in very low adult to child ratios, often one to two or one to one.

Repetitive, patterned experiences are used prescriptively to regulate lower brain regions in a calm, organized environment according to the children's responses described below.

These enrichment repetitions include music, rhythm, touch, games, play, movement activities, pacification, rudimentary social skills, and calming activities. *Brainstem responses* – A child who becomes angry or fearful may react aggressively. In these instances, the first goal is to re-establish a sense of calm. The child is removed from stimulation such as voices and activities by a calm and reassuring adult. The child is allowed time to calm. Then, soothing methods, such as talking calmly, deep breathing, stroking, brushing or stroking hair are used. *Limbic response* – A child will display agitated emotion and emotional speech. Their outburst is a signal that they do not perceive their views or needs are being met, fear something, or believe they are not understood. In these instances, the adult first listens and reflects feelings until the emotion is out of the child's language and they can listen. Next, while maintaining good eye contact, the calm adult speaks quietly, sincerely, and empathetically so the child feels heard and understood. The child is removed to a quiet, safe place where the adult verbalizes the child's emotions, needs, and wants, which the child may also articulate. This process helps the child understand themselves better and see that their point of view is appreciated, which is calming. Finally, relaxation exercises, humming, singing, gentle touch, and/or rocking are used. *Cortical response* – A child is able to discuss what they find upsetting with mild irritation, but is generally calm and rational. At this stage, rational, logical, problem solving strategies can be used, which include helping the child think through the problem; teaching social skills, empathy, and problem solving; and using role-playing, dramatic play, or other play activities to learn and rehearse new skills.

During the above activities, the child takes the lead and the adult follows. Soothing is never forced. The child is allowed to invite or accept it. A major premise of NMT is the importance of bonding between child and adult(s). Therefore, the primacy of these relationships is stressed. *Time in* with a caring adult is used rather than *time out*.

Each day involves welcoming, transition, and leaving rituals to act as cues for the children. All activities for various neurosequential levels are woven into the daily routine so they appear at regular intervals and become familiar to the child. Emphasis is placed on predictable, secure, calming, comforting classroom experiences.

Two studies (Barfield & Gaskill, 2003 and 2004) examined the effectiveness of NMT with preschool children at risk or living with Serious Emotional Disturbance. In a pre/post-test study, the social and emotional development of children improved significantly. At six-month follow-up, the children retained their gains. Results of a quasi-experimental, multiple time series design study indicated that the social and emotional development of the children in the NMT program improved significantly more than in the comparison program. Children in the NMT group maintained their gains at six and 12-month follow-ups. In both studies, the effects were found for overall social and emotional development encompassing emotion regulation, helpfulness, fair assertiveness, impulse modulation, cooperation, and empathy.

NMT met five of the six established criteria. The study designs were not true experimental. Although printed program protocol was used, and subsequently published, a formal manual was not in place at the time the studies were conducted.

Table 4 delineates the programs examined and a determination of confidence level for each based on the criteria established for review.

***Table 4. Established Criteria***

| Program | True Experimental Design? | Findings Replicated? | Preschool-Aged Children? | Fidelity Monitoring? | Effect Maintenance? | Curriculum Manual? | Level of Confidence |
|---|---|---|---|---|---|---|---|
| First Step to Success | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | High |
| The Incredible Years: Dinosaur Treatment Program | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | **Yes** | High |
| Al's Pals: Kids Making Healthy Choices | **Yes** | **Yes** | **Yes** | **Yes** | No | **Yes** | Medium |
| I Can Problem Solve | **Yes** | **Yes** | **Yes** | No | **Yes** | **Yes** | Medium |
| DARE to Be You | **Yes** | No | **Yes** | **Yes** | **Yes** | **Yes** | Medium |
| PALS: Developing Social Skills Through Language | **Yes** | **Yes** | **Yes** | No | **Yes** | **Yes** | Medium |
| PATHS: Promoting Alternative Thinking Strategies* | **Yes** | **Yes** | No | **Yes** | **Yes** | **Yes** | Medium |
| Living With a Purpose: Self-Determination | No | No | **Yes** | No | No | **Yes** | Low |
| Social-Emotional Intervention for 4-Year Olds At Risk | No | No | **Yes** | **Yes** | No | **Yes** | Low |
| Second Step* | **Yes** | No | No | **Yes** | **Yes** | No | Low |
| Neurosequential Model of Therapeutics | No | **Yes** | **Yes** | **Yes** | **Yes** | Yes | Promising Program |

** Not yet examined with preschool-aged children (testing currently underway)*

## Conclusions/Discussion

Through the course of the search for studies supporting the efficacy of social-emotional early intervention programs, it was clear that a dearth of studies have been conducted on the topic. In light of the modest amount of research in the literature, a search of databases yielded only ten programs that have been well evaluated and one promising program. The programs summarized in this article came from a variety of academic fields, included a mixture of child populations, used different terminology, and focused of various domains of social-emotional interventions.

All of the programs targeted children with adjustment problem risk factors or externalizing behaviors such as aggression. A majority of the studies focused on promoting protective factors. Two programs (*First Step* and *DARE to Be You)* addressed multiple risk factors at multiple levels. Of the eleven formal programs, including the promising program, six studies focused on social-emotional variables such as emotion regulation, four of which included social problem-solving. Two programs targeted academic outcomes such as attention and over-activity. One focused on parent-child interactions. Four of the programs included parent skills in addition to interventions with children (*DARE to Be You, The Incredible Years, First Step,* and *Self-Determination Curriculum).*

The duration of the interventions varied. The number of sessions ranged from 12 to 140 and were implemented from 10 minutes three times a week to 120 minutes, once a week. Three programs trained teachers or facilitators to administer the intervention (*DARE to Be You, Al's Pals: Kids Making Health Choices,* and *First Step).*

The sample sizes in the studies ranged from four to 798 children. Of the ten studies, two used a quasi-experimental design with comparison groups and eight utilized a true experimental design with random assignment to groups. The promising program was evaluated with a pre-experimental pre/post-test design and a quasi-experimental, multiple time series design. Six studies measured the effectiveness of the intervention with direct behavioral observations (Denham & Burton, 1996; Ridley & Vaughn, 1982; Serna et al., 1999; Shure et al., 1972; Walker et al., 1998; Webster-Stratton & Hammond, 1997).

The research on resiliency has implications for practice. For example, effective programs provide caring, nurturing, contextually and experientially rich, stimulating environments that provide opportunities for sensory experience and promote attachment to caregivers. Longitudinal studies of early intervention programs indicate programs that address multiple risk factors and provide both family support and early childhood intervention are most effective. The effective, longitudinal studies demonstrated commonalities as follows: With regard to scope and intensity, programs had both educational components for the children and support for adults and those components were intensely delivered. With regard to quality, staff/child ratios in infant/toddler programs ranged from one adult to three or four children, and one to six in preschool programs. Preserve and in-service training was extensive and supervision was ongoing.

Research on programs and interventions in the literature designed for infants and toddlers, ages zero to three is absent. Due to the importance of intervening during this critical brain development period, more curricula designed specifically to serve this target group need to be developed or evidence-based programs, tested with older children, need to be modified and examined for these younger children. As awareness of this special need becomes more and more apparent, the gap in research findings validating existing and promising services for the youngest little ones must be filled so they can be effectively served during this important window of opportunity.

Although similarities can be discerned from successful early intervention programs, some argue that reaching children even between birth and age three, during the period when most brain development occurs, may be too late because of the potential for detrimental prenatal effects on the brain. And, the National Research Council and Institutes of Medicine (NRCIM) (2000) indicated that no interventions in the literature were designed for infants and toddlers, ages zero to three. One finding of the NRCIM (2000) of about early biological insults and the developing brain reads:

> Research on early biological insults provides fundamental insights into the vulnerability and resilience of the developing central nervous system. This area of research also offers a compelling illustration that plasticity cuts both ways, leaving the developing fetus and young child simultaneously vulnerable to harm and receptive to positive influences. It also suggests that the current emphasis on the years from birth to age 3 may have unwittingly bypassed an important stage of development: the prenatal period is when damaging environmental conditions may have some of the most devastating effects on development and, consequently, is when preventive efforts may have the greatest benefits. (p. 198)

The above statement is a valid point and an excellent topic for another literature review.

## References


Aber, J. L. (1994). Poverty, violence and child development: Untangling family- and community-level effects. In C. Nelson (Ed.), *Threats to optimal development: Integrating biological, psychological and social risk factors.* The Minnesota symposium on child psychology, 27, Hillsdale, NJ: Erlbaum.

August, G. J., Realmuto, G. M., Hektner, J. M., & Bloomquist, M. I., (2001). An integrated components preventive intervention for aggressive elementary school children: The early risers program. *Journal of Consulting and Clinical Psychology, 69* (4), 614-626.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, N.J.: Prentice Hall.

Barnard, K. E., Morisset, C. E., & Speker, S. (1993). Preventive interventions: Enhancing parent-infant relationships. In C. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (pp. 386-401). New York: Guilford Press.

Barnett, W. S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Futures of Children, 5* (3), 25-50.

Barrera, M., Biglan, A., Taylor, T. K., Gunn, B. K., Smolkowski, K., Black, C., Arg, D.V., & Fowler, R.C. (2002). Early elementary school intervention to reduce conduct problems: A randomized trial with Hispanic and non-Hispanic children. *Prevention Science, 3* (2), 83-94.

Bredekamp, S., & Copple, C. (1997). *Developmentally appropriate practice in early childhood programs.* Washington, D.C.: NAEYC.

Bryant, D., & Kupersmidt, J. (2002, June). *Results from a classroom and home-based intervention for preschool aggression.* Presentation at Head Start's Six National Research Conference, Washington, D.C.

Cavanaugh, D. A., Lippitt, J., & Moyo, O. (2000). *Off to a good start: Research on the risk factors for early childhood problems and selected federal policies affecting children's social and emotional development and their readiness for school.* Chapel Hill: University of North Carolina, FPG Child Development Center.

Conduct Problems Prevention Research Group. (1999). Initial impact of the Fast Track prevention trial for conduct problems: II. Classroom effects. *Journal of Consulting and Clinical Psychology, 67,* 648-657

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. *Psychological Bulletin, 115,* 75-101.

Denham, S. S., & Burton, R. (1996). A social-emotional intervention for at-risk 4-year olds. *Journal of School Psychology, 34* (3), 225-245.

Dennis, W. (1973). *Children of the Creche.* New York: Appleton-Century-Crofts.

Domitrovich, C. E., Cortes, R., & Greenberg, M. T. (2002, June). *Preschool PATHS: Promoting social and emotional competence in young children.* Paper presented at the 6th National Head Start Research Conference, Washington, DC.

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

Dubas, J. S., Bodisch Lynch, K.B., Gallano, J., Geller, S., & Hunt, D. (1998). Preliminary evaluation of a resiliency-based preschool substance abuse and violence prevention project. *Journal of Drug Education, 28* (3), 235-255.

Eron, L. D. (1990). Understanding aggression. *Bulletin of the International Society for Research on Aggression, 12,* 5-9.

Farber, E. A., & Egeland, B. (1987). Invulnerability among abused and neglected children. In E. J. Anthony & B. J. Cohler (Eds.), *The invulnerable child* (pp. 253-88). New York: Guilford Press.

Feis, C. I., & Simons, C. (1985). Training preschool children in interpersonal cognitive problem-solving skills: A replication. *Prevention in Human Services, 3*(4), 235-255.

Forness, S. R., Serna, L. A., Kavale, K. A., & Nielsen, E. (1998). Mental health and Head Start: Teaching adaptive skills. *Education and Treatment of Children, 21* (3), 258-274.

Geller, S. (1999). *Al's Pals: Kids making healthy choices.* Richmond, VA: Wingspan L.L.C.

Gephart, M. (1997). Neighborhoods and communities as contexts for development. In G. Duncan, J. Brooks-Gunn, & J. L. Aber (Eds.), *Neighborhood poverty: Context and consequences for child and adolescent development* (pp.1-43). New York: Russell Sage.

Golly, A., Sprague, J., Walker, H. M., Beard, K., & Gorham, G. (2000). The First Step to Success program: An analysis of outcomes with identical twins across multiple baselines. *Behavioral Disorders, 25* (3), 170-182.

Golly, A., Stiller, B., & Walker, H. M. (1998). First Step to Success: Replication and social validation of an early intervention program for achieving secondary prevention goals. *Journal of Emotional and Behavioral Disorders, 6* (4), 243-250.

Greenberg, M.T., & Kusche, C.A., (1998). Preventive intervention for school-aged deaf children: The PATHS curriculum: *Journal of Deaf Studies and Deaf Education, 3,* 49-63

Grossman, D. C., Neckerman, H. J., Koespell, T.D., Liu, P. Y., Asher, K. N. & Beland, K., Frey, K., & Rivara, F. P. (1997). Effectiveness of a violence prevention curriculum among children in elementary school: A randomized controlled trial. *Journal of American Medical Association, 277,* 1605-1611.

Halpern, R. (1993). Poverty and infant development. In C. H. Zeanah (Ed.), *Handbook of infant mental health* (pp. 73-86). New York: Guilford Press.

Hardin, B. (1997, February/March). You cannot do it alone: Home visitation with psychologically vulnerable families and children. *Zero to Three: Bulletin of Zero to Three: National Center for Infants, Toddlers, and Families, 17,* 4.

High/Scope Educational Research Foundation. (2003, December). Educational programs: High/Scope infant and toddler key experiences. Retrieved from http://www.highscope.org/EducationalPrograms/EarlyChildhood/infanttoddkeyexp.htm.

Hoffman, A., & Field, S. (1995). Promoting self-determination through effective curriculum development. *Intervention in School and Clinic, 30,* 134-141.

Johnson, D. L., & Walker, T. (1987). Primary prevention of behavior problems in Mexican-American children. *American Journal of Community Psychology, 15,* 375-85.

Kazdin, A. E. (1993). Treatment of conduct disorder: Progress and directions in Psychotherapy research [Special issue]. Toward a developmental perspective on conduct disorder. *Development and Psychopathology, 5,* 1-2, 277-310.

Knitzer, J. (2000). Early childhood mental health services: A policy and systems development perspective. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed.) (pp. 416-438). New York: The Cambridge Press.

Kusche, C. A., & Greenberg, M. T. (1994). *The PATHS curriculum.* Seattle: Developmental Research and Programs.

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

Lochman, J. E., & Conduct Problems Prevention Research Group (1995). Screening of child behavior problems for prevention programs at school entry. Special section: Prediction and prevention of child and adolescent antisocial behavior. *Journal of Consulting and Clinical Psychology, 63* (4), 549-59.

Loeber, R., & Hay, D. F. (1994). Developmental approaches to aggression and conduct problems. In M. Rutter & D. F. Hay (Eds.), *Development through life: A handbook for clinicians* (pp. 488-516). Boston: Blackwell Scientific.

Luthar, S. S., & Suchman, N. E. (1999). Developmentally informed parenting interventions: The relational psychotherapy mothers' group. In D. Cicchetti & S. L. Toth (Eds.), *Rochester symposium on developmental psychopathology, volume X: Developmental approaches to prevention and intervention* (pp. 271-309). Rochester, NY: University of Rochester Press.

Lynch, K. B., Geller, S. R., & Schmidt, M. G. (in press). Multi-year evaluation of the effectiveness of a resilience-based prevention program for young children. *Journal of Primary Prevention.*

Lyons, R., K., Botein, S., & Grunbaum, H. U. (1984). Reaching the hard to reach: Serving isolated and depressed mothers with infants in the community. In B. Cohler & J. Musick (Eds.), *Intervention with psychiatrically disabled parents and their young children* (pp. 95-121). San Francisco: Jossey-Bass.

McLoyd, V. C. (1990). The impact of economic hardship on black families and children: Psychological distress, parenting, and socioeconomic development. *Child Development, 61,* 311-46.

McPhee, M. A. (1994). The efficacy of interpersonal cognitive problem solving (ICPS) and young children: Prevention in a naturalistic preschool environment. *Dissertation Abstracts International, 54,* 7A.

Miller-Heyl, J., MacPhee, D., & Fritz, J. (1998). DARE to be you: A family-support, early prevention program. *Journal of Primary Prevention, 18,* 257-285.

Morch, W. T., Clifford, G., Larsson, B., Drugli, M.B., & Fossum, S. (1998). *Treatment of young children with conduct disorders: The Incredible Years Program.* Tromsoe, Norway: University of Tromsoe, Faculty of Medicine, Institute of Clinical Medicine, Department of Child and Adolescent Psychiatry.

Moriarty, A. (1987). John, a boy who acquired resilience. In E. J. Anthony & B. J. Cohler (Eds.), *The invulnerable child* (pp. 106-43). New York: Guilford Press.

Murphy, L. B. (1987). Further reflections on resilience. In E. J. Anthony & B. J. Cohler (Eds), *The invulnerable child* (pp. 106-43). New York: Guilford Press.

National Research Council and Institute of Medicine. (2000). In J. P. Shonkoff & D. A. Phillips (Eds.), *From neurons to neighborhoods: The science of early childhood development*. Washington, D.C.: National Academy Press.

Perry, B. D. (2004). The neurosequential model of therapeutics: Using principles of neurodevelopment to help traumatized and maltreated children. In N. B. Webb (Ed), *Working with traumatized youth in child welfare.* New York: Guilford Publications.

Perry, B. D. (2000). The neurodevelopmental costs of adverse childhood events. http://www.ChildTrauma.org./cmaterials/Neuroarcheology.asp.

Perry, B. D., Pollard, R. A., Blakley, T. L., Baker, W. L., & Vigilante, D. (1995). Childhood trauma, the neurobiology of adaptation, and "use-dependent" development of the brain: How "states" become "traits." *Infant Mental Health Journal, 16,* 271-96.

Raver, C., & Knitzer, J. (2002). *Ready to enter: What research tells policymakers about strategies to promote social and emotional school readiness among three- and four-year-old children.* New York: National Council on Children in Poverty.

Ridley, C. A., & Vaughn, S. R. (1982). Interpersonal problem solving: An intervention program for preschool children. *Journal of Applied Developmental Psychology, 3,* 177-198.

Rutter, M. (1987). Psychosocial resilience and protective mechanism. *American Journal of Orthopsyychiatry, 5,* 316-31.

Rutter, M., Andersen-Wood, L., Beckett, C., Bredenkamp, D., Castle, J., Grootheus, C., Keppner, J., Keaveny, L., Lord, C., O'Connor, T. G., & English and Romanian adoptees study team. (1999). Quasi-autistic patterns following severe early global privation. *Journal of Child Psychology and Psychiatry, 40,* 537-476.

Rutter, M., & English and Romanian adoptees study team. (1998). Developmental catch-up, and deficit, following adoption after severe global early privation. *Journal of Child Psychology and Psychiatry, 39,* 4656-476.

Schneider, M. (1974). Turtle technique in the classroom. *Teaching Exceptional Children, 7,* 21-24.

Schweinhart, L. J., Barnes, H. V., Weikart, D. P., Barnett, W.D., & Epstein, A. S. (1993). *The High/Scope Perry Preschool Study through age 27.* Ypsilanti, MI: High/Scope Press.

Seitz, V., & Apfel, N. (1994). Parent-focused intervention: Diffusion effects on siblings. *Child Development, 65,* 677-683.

Serna, L. A. (1997). Social competence and self-determination skills. In E. Polloway & J. R. Patton (Eds.), *Strategies for teaching learners with special needs* (pp. 458-487). Austin: PRO-ED.

Serna, L. A., Nielsen, E., & Forness, S. (1999, December). *Systematic early detection and self-determination approach for mental health intervention in Head Start.* Paper presented at Division for Early Childhood National Conference, Washington, DC.

Shonkoff, J. P., & Meisels, S. J. (Eds.). (2000). *Handbook of early childhood intervention* (2nd ed.). Cambridge: Cambridge University Press

Shore, R. (1997). *Rethinking the brain: New insights into early development.* New York: Families and Work Institute.

Shure, M. B., & Spivack, G. (1979). Interpersonal cognitive problem solving and primary prevention: Programming for preschool and kindergarten children. *Journal of Clinical Child Psychology, 2,* 89-94.

Shure, M. B., & Spivack, G. (1980). Interpersonal problem solving as a mediator of behavioral adjustment in preschool and kindergarten children. *Journal of Applied Developmental Psychology, 1,* 29-44.

Shure, M. B., & Spivack, G. (1982). Interpersonal problem-solving in young children: A cognitive approach to prevention. *American Journal of Community Psychology, 10,* 341-356.

Shure, M.B., Spivack, G. & Jaeger, M. (1972). Problem-solving, thinking and adjustment among disadvantaged preschool children. *Childhood Development, 42,* 1729-1803.

Shure, M. B. (2000). *I Can Solve Problems: An interpersonal cognitive problem-solving program.* Champaign, IL: Research Press.

Snyder, H. (2001). Child delinquents. In R. Loeber & D. P. Farrington (Eds.), *Risk factors and successful interventions.* Thousand Oaks, Ca: Sage.

Spivack, G., Platt, J. J., & Shure, M. B. (1976). *The problem-solving approach to adjustment.* San Francisco: Jossey-Bass.

Spivack, G., & Shure, M. B. (1974). *Social adjustment of young children.* San Francisco: Jossey-Bass.

Spivack, G., & Shure, M. B. (1978). *Problem solving techniques in child-rearing.* San Francisco: Jossey-Bass.

Taylor, T. K., Schmidt, F., Pepler, D., & Hodges, H. (1998). A comparison of eclectic treatment with Webster-Stratton's parents and children series in a children's mental health center: A randomized controlled trial. *Behavior Therapy, 29,* 221-240.

Tremblay, R. E., Mass, L. C., Pagani, L., & Vitaro, F. (1996). From childhood physical aggression to adolescent maladjustment: The Montreal prevention experiment. In R. D. Peters & R. J. MacMahon (Eds.), *Preventing childhood disorders, substance abuse and delinquency* (pp. 268-298). Thousand Oaks, CA: Sage.

Vaughn, S. R., & Ridley, C. R. (1983). A preschool interpersonal problem-solving program: Does it affect behavior in the classroom? *Child Study Journal, 13* (1), 1-11.

Vaughn, S. R., Ridley, C.R., & Bullock, D. (1984). Interpersonal problem-solving skills training with aggressive young children. *Journal of Applied Developmental Psychology, 5*, 213-223.

Vaughn, S. R., Ridley, C. R., & Levine, L. (1986). *PALS: Developing social skills through language.* Chicago: Science Research Associates.

Walker, H. M., Kavanaugh, K., Stiller, B., Golly, A., Severson, H. H., & Feil, E. (1998). First Step to Success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders, 6* (2), 66-80.

Webster-Stratton, C. (1984). A randomized trial of two parent training programs for families with conduct-disordered children. *Journal of Consulting and clinical Psychology, 52* (4), 666-678.

Webster-Stratton, C. (1990a). Long-term follow-up with families with young conduct-problem children: From preschool to grade school. *Journal of Clinical Child Psychology, 19* (2), 144-149.

Webster-Stratton, C. (1990b). *The teachers and children's videotape series: A Dina Dinosaur's social skills and problem-solving curriculum.* Seattle: University of Washington Press.

Webster-Stratton, C. (1998). Preventing conduct problems in Head Start children: Strengthening parent competencies. *Journal of Clinical Psychology, 65* (1), 93-109.

Webster-Stratton, C., & Hammond, M. (1997). Treating children with early-onset conduct problems: A comparison of child and parent training interventions. *Journal of Consulting and Clinical Psychology, 65* (1), 93-109.

Webster-Stratton, C., & Hammond, M. (1998). Conduct problems and level of social competence of Head Start children: Prevalence, pervasiveness and associated risk factors. *Clinical Child Psychology and Family Psychology Review, 1* (2), 101-124.

Webster-Stratton, C., Hollinsworth, T., & Kolpacoff, M. (1989). The long-term effectiveness and clinical significance of three cost-effective training programs for families with conduct-problem children. *Journal of Consulting and clinical Psychology, 47* (4), 550-553.

Webster-Stratton, C., & Reid, J. (2003). Treating conduct problems and strengthening social and emotional competence in young children: The Dina Dinosaur treatment program. *Journal of Emotional and Behavioral Disorders, 11* (3), 130-143.

Webster-Stratton, D., Reid, M. J., & Hammond, M. (2001). Preventing conduct problems, promoting social competence: A parent and teacher training partnership in Head Start. *Journal of Clinical Child Psychology, 30* (3), 238-302.

Werner, E. E. (2000). Protective factors and individual resilience. In J. P. Shonkoff and S. J. Meisels (Eds), *Handbook of early childhood intervention* (2nd ed.) (pp. 115-132). New York: Cambridge University Press.

Werner, E. E., & Smith, R. S. (1989). *Vulnerable but invincible: A longitudinal study of resilient children and youth.* New York: Adams, Bannister, Cox.

Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood.* Ithica, NY: Cornell University Press.

Werner, E. E., Smith, R. S., & Ruth, S. (2001). *Journeys from childhood to midlife: Risk, resilience, and recovery*: Ithaca, NY: Cornell University Press.

Yoshikawa, H. (1995). Long-term effects of early childhood programs on social outcomes and delinquency. *The Future of Children, 5* (3), 51-75.

Zeanah, C., Jr. (1993). *Handbook of infant mental health.* New York: Guilford Press.

*For information about this review, please contact Sharon Barfield at shbarfld@ku.edu*

Sumner Mental Health Center in collaboration with Futures Unlimited Preschool, both of Wellington, Kansas, serve preschool-age children using a program based on the brain development research of Bruce Perry (2000 & 2004). In FY05, CMHRG conducted a quasi-experimental time series design study of the program that found the brain development model improved social and emotional developmental readiness significantly more ($p = .006$) than a program that includes academic materials and places less emphasis on social and emotional development. Findings of this study and one completed in FY04 will be written up and submitted for publication in FY06.