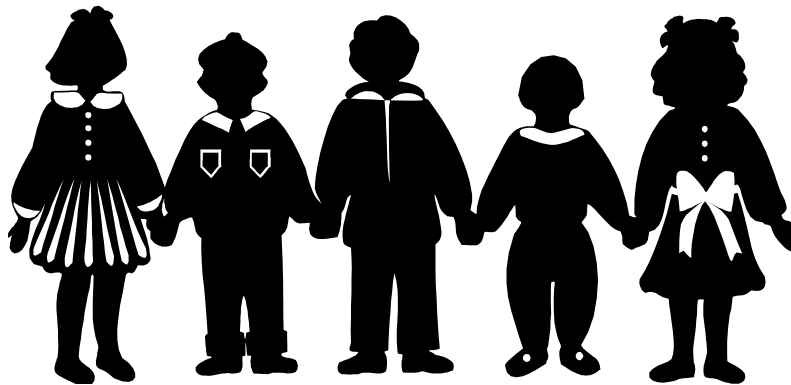


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**“BEST PRACTICES”
IN EARLY CHILDHOOD
MENTAL HEALTH PROGRAMS
FOR PRESCHOOL-AGE CHILDREN**



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EARLY CHILDHOOD MENTAL HEALTH PROGRAMS

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“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 disturbances, 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.

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

Recent research on the development of the brain in young children suggests not just the importance of early experience for cognitive development but also, significantly, for emotional development. 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 actually 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 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 et al. (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 seven-two, 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 dealings 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 that could be a grandmother or older sibling.

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 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.

PROTECTIVE FACTORS WITHIN THE CHILD – Internal Resources Individual Brings to Encounters with Stressful Life Events
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 security 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
Maternal Competence/Education -- Among most powerful protective factors were mother's education and exposure to competent caregiver in first year or 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.

PROTECTIVE FACTORS WITHIN THE CHILD – Internal Resources Individual Brings to Encounters with Stressful Life Events

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 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 EXTERNAL RESOURCES: 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.

**PROTECTIVE FACTORS WITHIN THE CHILD – Internal Resources Individual
Brings to Encounters with Stressful Life Events**

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). **Additionally, 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.

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

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 et al., 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/EducationalProgramsEarlyChildhood/infanttoddkkeyexp.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 Perry 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 the 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; preservice 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 Examining 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 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

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 on tables and more recent replication studies, with subsequent dates, are discussed in the review narrative.** Table 4 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	Partici- pants	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, & conflict management; decreased problem behavior at school and home
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 & 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: Developing Social Skills Through Language Communication 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-Determination	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	Partici-pants	Program Description	Study Design	Findings
Social-Emotional Intervention 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-Experimental	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 Experimental	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 Experimental	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
Promising 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 Experimental Pre/ Post and Quasi-Experimental	Significantly* increased overall social and emotional development, emotion regulation, helpfulness, fair assertiveness, impulse modulation, cooperation, & empathy.

* Statistically significant at minimally $p = .05$

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 demonstrating 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 *Steosaurus 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 is a solution, 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 Teachers 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 Skillbuilders (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) developed by Bruce Perry (2004) was developed primarily for use with children who have experienced trauma and/or neglect.

The specific program herein described is a joint venture between a preschool and a community mental health center. Preschool children identified as in need of therapeutic services are dually enrolled as students at the preschool and with the mental health center with the understanding that many of the services will be delivered at the preschool setting. Each child is assigned to a case manager that works at the preschool and may have attendant care during the preschool day if they need help focusing or managing their behavior. Staffing ratios are never larger than four children to one adult, but are often smaller, at times one to one. Services available at the preschool site for children and families are individual therapy, family therapy, home-based therapy, and medical services delivered by the mental health center. Each child is staffed by the attending therapist, case manager, preschool teacher, preschool nurse, preschool coordinator, attendant care personnel, and a para support staff.

Based on the work of Perry (2000), a neuroarcheological assessment is conducted to determine which neurosequential development interventions are most likely to be helpful to the child. This assessment becomes part of the case manager's plan of care and specifies activities. The mental health therapist also integrates this information into the individual therapy and family treatment plan, often as homework for the parents. 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 the other interventions to be more successful. The goals of the program are to increase functioning in the domains of social problem solving, emotion regulation, helpfulness, fair assertiveness, impulse modulation, cooperation, and empathy.

Parents agree to have their children enrolled in both programs and to participate in parent conferences, support meetings, and with family support personnel visiting the home. Based on interactional theory and knowledge of the vital role parents play in brain development as children experience their environments, every attempt is made to solicit the parents' involvement in the treatment plan and to enlist their active participation in the intervention program by carrying out the same enhancement activities in the home that are used in the therapeutic preschool program. Favorable neurosequential development and remediation of deregulation requires active, patterned, repetitive, enrichment experiences for the child.

Classes are held four days weekly. 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 classroom experience. Staff spends much time soothing, calming, and comforting children rather than using upsetting behavioral techniques that contribute to a sense of threat and arousal.

The NMT model is used along with compatible limit setting techniques. A weekly grid is used to ensure coverage of the therapeutic activities at each neurodevelopmental level. Mental health staff (either case managers or attendant care workers) carry out special repetitive, patterned enrichment activities. These enrichment enhancements will be carried out during the preschool day and in the community whenever possible. The enhancements are carried out with a high degree of frequency both at school and at home. Caution is taken not to exceed the social emotional functional ratio for each child until success has been firmly established at the lower social emotional levels. Every attempt is made to maintain a pleasurable, safe, and predictable environment.

Examples of Neuroenhancement Activities based on neuroanatomical assessment include:

Brainstem: (Developmental Goal: Emotional state regulation/memory; flexible stress responses)

Massage/Touching games (i.e., Slippery Hand game, Hills and Valley game, This Little Piggy, relaxing massage, and grooming such as hair brushing).

Pacification and soothing activities include those listed above as well as rocking in a chair, swinging, singing, holding, and cuddling.

Sensory Stimulation activities in each sensory modality. Sand, clay, finger painting, and shaving cream play. Banana bread and/or cookie making for scents and touch. Smell of fun, pleasure, and identification with household smells (cinnamon, vanilla, baby lotion). Texture bags and bins (rough, smooth, etc.). Sounds, songs, for fun, pleasure and identification. Tastes from the kitchen or candy store for fun, pleasure, and identification.

Midbrain: (Developmental Goal: Sensory processing; control of large and small motor movements)

Music, songs, rhythm bands, marching bands, “We sing songs.”

Narrative: dramatic story telling by adults. Reading books and poems with rhyme and rhythm (i.e., Dr. Seuss and Nursery Rhymes)

Movement activities such as preschool songs, dance, or other movement activities (Blow like a tree in the gentle wind, pretend you are rain falling down, London Bridge. Jungle Gym, Crawling Tunnels, Balance Beams, and Slides. Play with balls of various sizes.

Limbic: (Developmental Goal: Emotional regulation, affect regulation, attachment, empathy, insight, foresight, language)

Social games, sharing games, cooperation games, taking turns. Visits from a dog or cat to pet and learn to touch softly, gently and empathically. A therapy dog has been helpful.

Nature walks to discover the natural world with senses (sticks, stones, water, clouds, animals, trees, plants, wind). Look at natural objects brought to classroom (seashells, bird's nest, baby birds, bats, worms, soil, sand, bark).

Creative dance and movement activities.

Art, drawing, and creative arts expressions with different materials. Little plays or dramas to act out, with simple paper sack costumes.

In a pre-experimental, one-group, pretest/posttest examination of the NMT program described above (Barfield & Gaskill, 2003) all children demonstrated significant improvement in overall social and emotional development, emotion regulation, helpfulness, fair assertiveness, impulse modulation, cooperation, and empathy from pretest to posttest ($p = 0.001$).

In a quasi-experimental study (Barfield & Gaskill, 2004) replicated findings from the 2003 study. The 2004 study used a single-subject, time series design, both individually and aggregated. During the regular school year, a curriculum based on *Conscious Discipline (CD)* that included regular classroom academic content was used and during the summer program, NMT curriculum alone was used with increased emphasis on social and emotional development. Other program components, previously described (e.g., case management and family therapy) remained constant. The children served as their own control group, with the last three weeks of the regular school year, when the CD model was implemented, serving as the baseline for comparison. The children demonstrated significant improvement during the intervention phase, when the NMT model was received, compared to the baseline phase, when the CD model was received ($p = 0.006$). The dependent variables included overall social and emotional development, emotion regulation, helpfulness, fair assertiveness, impulse modulation, cooperation, and empathy.

NMT met four of the six established criteria. The study design was not a true experimental and although printed program protocol was used and a published curriculum manual is being developed, a formal manual was not in place at the time above studies were conducted.

Table 4. Established Criteria

Program	True Experimental Design ?	Findings Repliated?	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
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
PATHS: Promoting Alternative Thinking Strategies*	Yes	Yes	No	Yes	Yes	Yes	Medium
Neurosequential Model of Therapeutics	No	Yes	Yes	Yes	Yes	No	Promising Program

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

Discussion/Conclusions

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. 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. Pre-service 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 to age three, during the period when most brain development occurs, may be too late because of the potential for prenatal brain damage. And, no interventions in the literature were designed for infants and toddlers, ages zero to three. One finding of the National Research Council and Institutes of Medicines (2000) 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.

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