

Comprehensive Evidence-Based Social–Emotional Curricula for Young Children: An Analysis of Efficacious Adoption Potential

Gail E. Joseph
and
Phillip S. Strain
*University of Colorado
at Denver*

This article reviews eight comprehensive social–emotional curricula for children under 6 years of age and describes two promising curricula currently under investigation. These programs have been successful in the promotion of interpersonal skills and the reduction or prevention of challenging behavior for a wide range of children. Particular attention is paid to the level of evidence or scientific believability associated with criteria that reflect efficacious adoption of curricula. Areas for future research are discussed.

Social–emotional curricular programs are comprehensive, manualized curricula that focus on fostering protective factors and reducing risk factors associated with academic and social problems. Social–emotional curricular programs focus on friendship skills, emotional recognition, problem-solving skills training, violence and substance abuse prevention, and social and anger coping skills training.

Compelling evidence from developmental research has revealed that early experiences and relationships at home and school set the stage for how a child learns self-regulation skills, as well as the ability to manage emotions, take the perspective of others, and develop close relationships (National Research Council and Institutes of Medicine, 2000). Evidence also exists that children's social and emotional competence (marked by more cooperation and less aggressive behavior) is integrally linked to their cognitive and academic competencies manifested by their ability to learn and be successful at school (Raver & Knitzer, 2002). Furthermore, evidence suggests that without intervention, emotional and behavioral problems in young children (e.g., aggression, antisocial behavior patterns) may be less amenable to intervention after age 8 (Eron, 1990), resulting in an escalation of academic problems and antisocial behavior and eventual school drop out in later years (Snyder, 2001; Tremblay, Mass, Pagani, & Vitaro, 1996).

Overall, national survey data have suggested that the prevalence of problem behaviors in young children is about 10% and may be as high as 25% for children of low-income families (Webster-Stratton & Hammond, 1998). In fact, preschool teachers report that child disruptive behavior problems are the most important challenges they face. These findings have implications for the kinds of support teachers need, as well as for preventive intervention strategies for parents and teachers targeted at strengthening social and emotional competence in young children.

A socially and emotionally healthy, school-ready child is confident and friendly, has good peer relationships, tackles and persists at challenging tasks, has good language development, can communicate well, listens to instructions, and is attentive (National Research Council and Institutes of Medicine, 2000). The ability to form and maintain positive friendships involves a complex interplay of feelings, thoughts, and behaviors. Conversing with other children, solving interpersonal problems, entering into play with groups of peers, and regulating emotional responses to frustrating experiences are skills that contribute to success in making friends (Crick & Dodge, 1994). Socially competent children fairly easily learn strategies for interacting comfortably and positively with others during their everyday experiences at home and at school. Children with a more difficult temperament (e.g.,

*Address: Gail E. Joseph, Positive Early Learning Experiences Center, University of Colorado at Denver,
1380 Lawrence St., Suite 650, Denver, CO 80204.*

hyperactivity, impulsivity, inattention) and children from disadvantaged family backgrounds of abuse and conflict may have particular difficulty with conflict management, social skills, emotional regulation, and making friends. These children may require more intensive and explicit training to learn the skills needed to be successful in their peer group.

Teaching these children skills, such as how to play with other children, recognize and express feelings, be friendly and talk to peers, exercise self-control, and negotiate conflict situations, may result in fewer aggressive responses, more positive friendships, inclusion with prosocial peer groups, and increased likelihood of success in school. Because development of these skills is not automatic, particularly for children such as those mentioned earlier, intentional teaching is needed (Bredekamp & Copple, 1997). In the last 30 years, social-emotional curricula have been developed to teach young children these prosocial skills and to decrease problem behavior. Some of these curricula have been evaluated in peer-reviewed studies.

The overall aims of this review were threefold. First, we were interested in identifying social-emotional curricula with peer-reviewed efficacy data for children ages 3 to 6 years. Second, we were interested in briefly identifying the available efficacy data and judging the current status of each curricula against a set of evaluative criteria focused on potential for efficacious, widespread adoption. Third, we sought to advance the research on social-emotional curricula by highlighting various data voids with individual curricula and suggesting more general issues to be addressed by empirical methods. Although similar reviews are available for school-age populations (e.g., Greenberg, Domitrovich, & Bumbarger, 1999), we do not know of a comparable review for the preschool population.

LITERATURE REVIEW PROCEDURES

The literature review process was conducted in two steps. First, a literature search was administered to identify the empirical studies conducted on the efficacy of social-emotional curricula for young children. Two key delimiting criteria in the search were participant age (under 6 years) and a comprehensive scope and sequence of intervention that was evidenced in a manualized form. Literature searches using several relevant keywords (emotional competence, social skills curriculum, problem-solving skills, peer relations, disruptive behavior, aggression, conduct disorder treatment, early intervention, preschool curricula, young children) were conducted using PsychInfo, ERIC, Medline, and other electronic databases. Additional searches were made based on references found in review articles (Bryant, Vizzard, Willoughby, & Kuper-

smidt, 1999; Denham & Almeida, 1987; Greenberg, Domitrovich, Bumbarger, 1999; Kazdin, 1991; Yoshikawa & Knitzer, 1997). Government reports were also reviewed for relevant references, including reports from the National Institute of Mental Health (Cavanaugh, Lippitt, & Moyo, 2000) and the Surgeon General's report on mental health (U.S. Department of Health and Human Services, 1999). Eight curricula and empirical studies associated with each were identified by this method. Second, social-emotional curricula were identified by searching publishers' Web sites, national organization Web sites, searches on the World Wide Web, catalogs, and so forth. Additionally, Web sites for early childhood educators were searched for suggested resources on social-emotional curricular programs for young children. Organizations included the National Association for the Education of Young Children, the National Head Start Association, and the Head Start Bureau. With each document attained, the reference list was reviewed against the list of identified programs to further guard against omissions and oversights. Two more programs were added through this step. These two curricula (PATHS and Second Step) do not presently have empirical evidence for children ages 3 to 6; however, studies are in the process of being completed, so we have included them in this review as "promising programs." The empirical studies supporting the first eight curricula were identified by searching the databases listed previously and contacting curriculum developers to inquire about ongoing research.

Once the 10 curricula were identified and sources for additional curricula exhausted, the first author contacted each curriculum developer to inquire about any ongoing studies or prepublished data that could affect our subsequent descriptions and analyses.

METHOD

We reviewed all studies supporting each curricula in regard to the following adoption criteria: (a) treatment fidelity, (b) treatment generalization, (c) treatment maintenance, (d) social validity of outcomes, (e) acceptability of interventions, (f) replication across investigators, (g) replication across clinical groups, (h) evidence across ethnic/racially diverse groups, and (i) evidence for replication across settings. Together, these criteria may be thought of as a yardstick for determining the probability of *efficacious adoption*, meaning the likely reproduction of prior positive results should a program choose to use a particular curricular approach. These criteria, taken from Odom and Strain (in press) and Lonigan, Elbert, and Johnson's (1998) analyses of empirically defensible interventions for the American Psychological Association, reflect the extent of research evidence supporting potential efficacious adoption. Each curriculum was given an esti-

mated degree of confidence. A high confidence rating was given if the literature provided evidence for seven or more of the previously listed criteria, a medium confidence rating was given if the literature provided evidence for four to six of the criteria, and a low confidence rating was given if the literature provided evidence for fewer than four of the criteria.

RESULTS

Table 1 summarizes the key characteristics (the name of the program, the first author, focal participants, intervention treatment and duration, outcomes) of the 10 curricula. In each section below, we provide a description of the social-emotional curricular approach, followed by a summary of the evidence according to the criteria outlined previously. Finally, we provide an overall confidence rating for each curriculum. Table 2 provides an overview of how each of the 8 social and emotional curricula was rated on the nine indicators of adoption potential (Second Step and PATHS are not included in this table, as no published data currently exists on the preschool population). Programs ranged from a low of meeting two indicators to a high of meeting seven indicators. Four of the 8 curricula met three or fewer criteria. In the balance of this section we review published studies on each curriculum according to the adoption criteria.

Social-Emotional Intervention for 4-Year-Olds At Risk

Denham and Burton (1996) developed an interpersonal cognitive, problem-solving intervention with additional components addressing attachment, relationship building, and the ability to recognize and label emotions. The 32-week intervention consists of activities derived from several sources and is prescribed for teaching on a 4 day per week schedule. Participating children displayed decreased negative emotion (anger, hostility, sadness) as well as increased peer skill and productive involvement over the intervention period as measured by direct observation. Their teachers also saw them as improving socially as measured on a teacher questionnaire. Although these are encouraging results, the study design had several methodological limitations. Most notable of the limitations was that groups were not assigned randomly and observers, as well as teachers, were aware of condition assignments.

The social-emotional intervention for 4-year-old children at risk met two of the nine criteria and did not demonstrate treatment generalization, treatment maintenance, social validity of outcomes, acceptability of interventions, replication across investigators, replication across clinical groups, or replication across settings.

Living with a Purpose: Self-Determination Curriculum

The self-determination approach utilizes skill building to focus on activities that help children give input into the decisions that affect their own lives. The curriculum is based on research showing that many students who are 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 their 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, and Forness (1999) developed the *Living with a Purpose Self-Determination Program* for 3- to 5-year-old children. The intervention duration is 12 weeks, with two 3-hour sessions per week, and addresses three adaptive skill areas: direction following, sharing, and problem solving. Results of the preliminary data are encouraging (Forness, Serna, Kavale, & Nielsen, 1998). Problem behaviors decreased from pre- to post-testing, while control group members demonstrated increases in problem behaviors. Additional direct behavioral observation revealed increased adaptive skills, increased social interaction, and decreased maladaptive behavior. No significant effects were found on aggression or non-compliance.

Limitations in this study include lack of randomization, highly skilled teachers selected as interveners, no data collection of implementation fidelity, and a relatively small sample size. A particular strength of this intervention is the attention to cultural diversity. The intervention is in both Spanish and English, and the characters in the storybooks are animals and homes familiar to children in the southwest United States. Serna and colleagues are currently replicating this intervention with a larger sample of Head Start children in New Mexico.

The self-determination curriculum met two of the nine criteria. There was no demonstration of treatment fidelity, treatment generalization, treatment maintenance, social validity of outcomes, acceptability of interventions, replication across investigators, or replication across settings.

PALS: Developing Social Skills Through Language, Communication Skillbuilders

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 elements are language concepts, empathy, goal identification, generating alternatives, evaluating consequences, cue sensitivity, and rehearsal. Each lesson format consists of a skit with puppets that teach and model a skill, teacher questions about the puppet's behavior, stu-

TABLE 1. Summary of Social-Emotional Learning Program Research Studies

Program name	First author	Focal participants	Intervention	Outcomes
Social-emotional intervention for 4-year-olds at risk	Denham, S. (1996)	Preschool children	Relationship building through "floor time"; lessons in understanding and regulating emotions; 32-week intervention/4 days a week	↑ peer skills ↑ social skills ↓ negative emotions
<i>Self-Determination Curriculum</i>	Serna, L. (1999)	Preschool children, ages 3-5	12-week intervention implementing two 3-hour sessions each week in the classroom. Intervention is composed of three adaptive skill areas: (a) direct following, (b) sharing, (c) problem solving. Skills are demonstrated to children through the use of stories and opportunities to act out the skills	↑ adaptive skills ↓ problem behaviors ↓ inattention & overactivity
<i>PALS: Developing Social Skills Through Language, Communication Skill Builders</i>	Vaughn, S. (1986)	Preschool children	50 interpersonal problem-solving training sessions present 140 lessons to children over 10 weeks in the classroom	↑ solutions to interpersonal problems ↔ no difference on empathy
<i>DARE to Be You</i>	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 one's self	↑ developmental levels ↓ oppositional behavior
<i>I Can Problem Solve</i>	Shure, M. (1972)	Preschool children, ages 4-5	12-week intervention using a variety of sequenced games, discussion, and group-interaction techniques; dialoguing is used to provide opportunities for children to exercise their problem-solving skills	↑ solutions and consequences ↑ adjusted behavior ↓ inhibited & impulsive behavior
<i>Al's Pals: Kids Making Healthy Choices</i>	Geller, S. (1999)	Preschool children, ages 4 and 5	Two major components: teacher training & a resiliency-based preschool curriculum implemented by the trained teachers. 43 lessons, 20 minutes each	↓ problem behavior
<i>Incredible Years Series: Dinosaur School</i>	Webster-Stratton, C. (1990b)	Children ages 4-7 with child misconduct problems	22 two-hour sessions with 5-6 children in clinic setting. Children are taught social and problem-solving skills through video modeling, role plays, activities, and puppets	↑ parent-child interactions ↑ child social problem solving ↑ conflict management ↓ problem behavior at home and school
<i>First Step</i>	Walker, H. M. (1998)	Kindergarten children	Program is combined home and school intervention approach to preventing antisocial behavior. Intervention requires 2-3 months and is applied to only one child at a time in a kindergarten classroom	↑ adaptive skills ↑ academic engagement time ↓ aggression
<i>Second Step</i>	Committee for Children (1989)	Second- and third-grade students	Two times a week, 50-minute lessons. Uses 11" x 17" photo lesson cards. Teacher shows cards and follows the lesson outline on the reverse of the card. Lesson techniques consist of discussion, teacher modeling skills, and role-plays	↓ physical aggression ↓ hostile & aggressive comments ↑ prosocial & neutral behavior
<i>Promoting Alternative Thinking Strategies: PATHS</i>	Kusche, C. A. (1994)	First-sixth grade students (deaf/hearing impaired, general education, and special education-classified skills children)	Taught three times per week for a minimum of 20-30 minutes per day, systematic, developmentally based lessons, materials, and instructions for teaching emotional literacy, self-control, social competence, positive peer relations, and interpersonal problem-solving	↑ self-control, ability to tolerate frustration ↑ understanding and recognition of emotions ↑ effective conflict-resolution strategies ↑ thinking and planning skills ↓ anxiety/depressive symptoms ↓ conduct problems ↓ symptoms of sadness and depression ↓ report of conduct problems, including aggression

TABLE 2. Levels of Evidence

Program name	First author	Treatment fidelity	Treatment generalization	Treatment maintenance	Social validity of outcomes	Acceptability of interventions	Replication across investigators	Replication across clinical groups	Evidence across ethnicity/racially diverse groups	Replication across settings	Level of evidence
Social-emotional intervention for 4-year-olds at risk	Denham, S. (1996)	✓							✓		Low
<i>Self-Determination Curriculum</i>	Serna, L. (1999)							✓	✓		Low
<i>PALS: Developing Social Skills Through Language</i>	Vaughn, S. (1986)			✓			✓	✓			Low
<i>DARE to Be You</i>	Miller-Heyl, J. (1998)	✓		✓					✓		Low
<i>I Can Problem Solve</i>	Shure, M. (1972)		✓	✓			✓		✓	✓	Medium
<i>At's Pals: Kids Making Healthy Choices</i>	Geller, S. (1999)	✓				✓	✓		✓	✓	Medium
<i>The Incredible Years: Dinosaur School</i>	Webster-Stratton, C. (1990b)	✓	✓	✓		✓	✓	✓	✓		High
<i>First Step</i>	Walker, H. (1998)	✓	✓	✓	✓		✓	✓	✓	In progress	High

dents' role-playing a problem situation, and practice of the skills taught. Experimental group participants were exposed to the training procedure for 20 minutes per day, 5 days per week, for 10 weeks, for a total of 50 training sessions. The contact control group participated in reading story sessions during the same time period. Twenty-five children from two preschools in a middle-class southwestern city who were identified as aggressive participated in the study. Participants from each school were randomly assigned to an experimental group or a contact control group. There were 13 children in the experimental group (10 boys, 3 girls) and 11 in the contact control group (9 boys, 2 girls). Participants' mean age was 5 years 4 months. The authors reported significant increases in generating relevant solutions to interpersonal problems at posttesting. This indicates that children possessed a more expanded repertoire of solutions for solving interpersonal difficulties. Posttest and follow-up results also indicated that experimental group children, relative to the contact control group, were less likely to engage in irrelevant talk and more likely to respond to the problem-solving task. The results also indicated the experimental group, relative to the control group, demonstrated a significant increase in relevancy ratio (the ratio of relevant solutions to total solutions) at both posttest and follow-up.

Ridley and Vaughn (1982) built on interpersonal cognitive problem solving (Spivack, Platt, & Shure, 1976) to develop a program that involves an additional behavioral and empathic mode of communication component. Several randomized experimental studies of their preschool interpersonal 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, 1983) found a significant effect for treatment on positive verbal and nonverbal peer interactions but no difference in decreasing negative interactions. Vaughn, Ridley, and Dungan Bullock (1984) used preschool interpersonal problem solving with aggressive preschool children and found that the experimental group was able to generate more alternative solutions to an interpersonal problem with a peer at both posttreatment and follow-up. These studies are limited by the small and vaguely described sample size, which does not allow for generalization beyond the sample, and the ambiguity of the data collection process.

The PALS curriculum met three of the nine criteria. The research lacked a demonstration of treatment fidelity, treatment generalization, social validity of outcomes, acceptability of interventions, evidence across ethnic/racially diverse groups, or replication across settings.

DARE to Be You

DARE to Be You (Miller-Heyl, MacPhee, & Fritz 1998) is a multilevel, primary prevention program for children

ages 2 to 5 years and their families. The program consists of family, school, and community components. The family component offers parent, youth, and family training activities for teaching self-responsibility, personal and parenting efficacy, communication and social skills, and problem-solving and decision-making skills. Parents attend a 12-week family workshop series (30 hours) and a 12-hour workshop held semiannually to reinforce the concepts. The school component is designed to train and support teachers and childcare providers who work with the targeted youth. The community component trains community members who interact with target families, local health departments, social services agencies, family center personnel, probation officers, and counselors. The school and community components have 15-hour training requirements.

Over a 5-year period, successive cohorts of families with children ages 2 to 5 were randomly assigned to control ($n = 301$) and experimental ($n = 496$) groups (Miller-Heyl et al., 1998). Parents completed pre-, post-, and 2-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 pre- and postprogram surveys on child development and problematic child behavior. There were no direct behavioral observations of child or parent behavior. Additionally, measures of treatment fidelity were implemented. Community agencies also assessed the relevance of the program.

The *DARE to Be You* curriculum met three of the nine criteria. The research did not demonstrate treatment generalization, social validity of outcomes, acceptability of interventions, replication across investigators, replication across clinical groups, or replication across settings.

I Can Problem Solve (ICPS)

A variety of programs have been developed to teach young children interpersonal problem-solving skills that include reading others' cues, taking others' perspectives, and generating solutions to problems. Spivack, Platt, and Shure (1976) developed the widely used social skills program, ICPS, which stands for both Interpersonal Cognitive Problem Solving and I Can Problem Solve. ICPS is implemented over 12 weeks using a variety of sequenced games, discussion, and group interaction techniques (Shure, 2000). Shure and Spivack (1979) reported that 4- and 5-year-old disruptive children can be taught to generate alternative solutions to interpersonal problems, as 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 Spivack and Shure's work. Two studies demonstrated a decrease in problem behaviors (acting out and impulsiv-

ity) in the classroom setting as measured by teacher behavior rating scales (McPhee, 1994; Shure & Spivack, 1980). However, utilizing hypothetical reasoning problem-solving situations and rating scales as measures is a limitation of their work, as children's ability to solve hypothetical dilemmas does not necessarily translate into behavioral competence in social situations. When Feis and Simons (1985) used ICPS and measured aggression with behavioral observations, they found no significant decrease in aggressive acts by the treatment group as compared to the control group. Currently, ICPS is being replicated in New Jersey and Chicago with preschool children who speak English and Spanish (M. B. Shure, personal communication, November 26, 2002).

The ICPS curricula met five of the nine criteria. The research did not document treatment fidelity, social validity of outcomes, acceptability of interventions, or replication across clinical groups.

Al's Pals: Kids Making Healthy Choices

Al's Pals: Kids Making Healthy Choices (Geller, 1999) is a resiliency-based substance abuse and violence prevention program. The intervention consists of two major components: (a) a series of teacher training sessions and (b) a resiliency-based preschool curriculum implemented by the trained teachers. Teacher training sessions focus on enhancing their 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 introducing resiliency-based prevention strategies for use in the classroom. *Al's Pals* is a 43-lesson program that introduces specific 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, the teacher introduces the children to key concepts, which are reinforced in naturally occurring situations throughout the day.

Two studies have evaluated the *Al's Pals* program. The longest study (Dubas, Lynch, Galano, & Geller-Hunt, 1998) examined program effects over 1 school year. At posttest as compared to controls, participating preschool to second-grade students showed improved resiliency-related skills, such as social skills and problem-solving abilities, and decreased negative coping behaviors. In two studies (Dubas et al., 1998; Lynch, Geller, & Schmidt, in press), teachers also reported increased positive coping behaviors and social interaction skills, decreased social withdrawal, and reduced aggressive behaviors.

The Dubas et al. (1998) study has several limitations that warrant cautious interpretation of the results. First, administrators ensured that sites with highly skilled

teachers were selected as intervention locations. Second, a discrepancy existed in the education and training backgrounds of teachers in the intervention group versus the control group. Third, the changes in children's behavior were only measured by teacher report. Fourth, the teachers who were filling out the reports were also administering the intervention.

The *Al's Pals* curriculum met five of the nine criteria; the research did not document treatment generalization, treatment maintenance, social validity of outcomes, and replication across clinical groups.

Incredible Years Child Training Program (Dinosaur School)

Dinosaur School (Webster-Stratton, 1990b) emphasizes 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. It is designed for use as a "pull out" treatment program for small groups of children exhibiting conduct problems. *Dinosaur School* takes place in 18 to 22 weekly 2-hour sessions in a clinic setting (Webster-Stratton & Reid, in press).

Two randomized control group evaluations of the child training series indicated significant increases in children's appropriate cognitive problem-solving strategies and more prosocial conflict management strategies with peers, increased social competence and appropriate play skills, and reduced conduct problems at home and school (Webster-Stratton & Hammond, 1997; Webster-Stratton & Reid, 1999). Program evaluations have included home and school direct behavioral observations by unbiased evaluators and teacher and parent reports on standardized measures. These findings have been replicated in three randomized studies by independent investigators with different ethnic populations and age groups (August, Realmuto, Hektner, & Bloomquist, 2001; Barrera et al., 2002; Taylor, Schmidt, Pepler, & Hodgins, 1998).

Currently, *Dinosaur School* is being implemented and evaluated as a universal intervention in Head Start, kindergarten, and first-grade classrooms. As a universal intervention, the program is implemented for whole classrooms with 60 lesson plans that are delivered 1 to 3 times a week in 45-minute class periods (Joseph, Webster-Stratton, & Reid, 2002). Preliminary analysis with more than 628 children suggests the program is promising. Independent observations of children in classrooms show significant differences between control and intervention students on variables such as compliance, social contact, and aggressive behavior. Intervention classrooms had significantly greater positive classroom atmospheres than control classrooms, and intervention students had significantly higher school readiness scores as measured by behaviors such as being focused and on task and showing cognitive concentration (Webster-Stratton & Reid, in

press). Additionally, *Dinosaur School* is being replicated with preschool age children in Norway (Mørch, Clifford, Larsson, Drugli, & Fossum, 1998).

The *Incredible Years Training Series* also features comprehensive, multifaceted, and developmentally based curricula for parents and teachers. These components have been extensively evaluated in randomized control group studies with children diagnosed with oppositional defiant disorder/conduct disorder (Webster-Stratton, 1984, 1990a, 1998; Webster-Stratton, Hollingsworth, & Kolpacoff, 1989; Webster-Stratton & Reid, 1999; Webster-Stratton, Reid, & Hammond, 2001).

The *Dinosaur School* curriculum met eight of the nine criteria; the research did not document social validity of outcomes and is currently investigating replication across settings.

First Step to Success

First Step to Success (Walker et al., 1998) was designed as an early intervention program for at-risk kindergartners who show the early signs of an antisocial behavior pattern (aggressive, oppositional–defiant, has severe tantrums, victimizes others). This program consists of three modules: proactive, universal screening of all kindergartners; school intervention involving the teacher, peers, and target child; and parent/caregiver training for positive adult support of the child's school adjustment. The goal of this program is to divert kindergartners from an antisocial path of behavior. Children selected for the treatment and control group were identified through a multistage screening process for behaviorally at-risk young children (Walker et al., 1998). Of the at-risk kindergartners receiving the program, 33% were already receiving supplemental school services, 7% were of minority status, 37% lived in families with low incomes (received either free or reduced-cost lunch), and 11% screened as eligible for special education services, although none had been certified for special education. Children treated in the *First Step to Success* program significantly improved on four measures at posttest as compared to the control group. Treated children significantly improved adaptive behavior, reduced maladaptive behavior, and reduced aggressive behavior on teacher-rated measures. Treated subjects also significantly improved their average percentage of academic engaged time (an observer-rated measure of a child's on-task behavior) as compared to a wait-list control group. These findings have been replicated across investigators (Golly, Stiller, & Walker, 1998) and across clinical groups (Golly, Sprague, Walker, Beard, & Gorham, 2000).

The *First Step to Success* curriculum met seven of the nine criteria. The research did not document acceptability of interventions; replication across settings is currently in progress.

Promising Programs

Second Step. 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 behavioral repertoires. The *Second Step* curriculum teaches competence in empathy, social problem solving, and impulse control skills to prevent psychosocial problems and reduce specific problem behaviors such as aggression. It is based on research indicating that competence in empathy, social problem solving, and impulse control buffers students from risks (Cavanaugh et al., 2000). *Second Step* is a violence prevention curriculum created with the dual goals of reducing the development of social, emotional, and behavioral problems and promoting the development of core competencies. Classroom teachers or counselors are primarily responsible for delivering the program to students from preschool to middle school. Each 35-minute lesson (30 lessons total) is typically taught twice a week in a classroom setting. At the early childhood and elementary levels, lessons are structured around large black-and-white photo cards depicting children in various social–emotional situations. The reverse side of the cards provides cues for teachers, such as key concepts, objectives, and a suggested lesson script. Teachers read the lesson story accompanying the photographs and guide whole-group discussions. Results of a true, experimental pre–post test study (Grossman et al., 1997) with 790 primarily White second- and third-grade students indicated that physical aggression decreased from autumn to spring among students in the *Second Step* classrooms. In contrast, physical aggression increased among students in control classrooms during this time. Six months later, students in the experimental condition continued to show lower levels of aggression. Hostile and aggressive comments also decreased over the year in *Second Step* classrooms and were observed to increase in the control classrooms. Friendly behavior, including prosocial and neutral interactions, increased from autumn to spring in *Second Step* classrooms but did not change in control classrooms. Six months later, students in the *Second Step* classes maintained the higher levels of positive interaction. Although coded observations showed significant effects, there were no differences between groups on parent or teacher ratings of behavior. Formative assessments of *Second Step* were conducted as a feature of program development (Moore & Beland, 1992). In formative pilot studies, preschool through middle school–age children's perspective-taking and problem-solving abilities were found to significantly improve after *Second Step* was implemented. Children in classrooms without *Second Step* showed no improvement from pre- to post-test.

Currently, *Second Step* is being evaluated as part of a larger intervention, the Preschool Behavior Project (Bryant & Kupersmidt, 2002). As there are no published data to date on the efficacy of Second Step with preschoolers, the curriculum was not evaluated against the established criteria.

PATHS: Promoting Alternative Thinking Strategies.

The PATHS Curriculum (Kusche & Greenberg, 1994) consists of 30 to 45 lessons designed to promote social and emotional competence; prevent violence, aggression, and other behavior problems; improve critical thinking skills; and enhance the classroom climate. It is used over a year.

The curriculum offers opportunities for children to practice identifying a wide range of feelings and their 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 students to apply many of these competencies beyond the lesson. Instructional strategies include class meetings to resolve conflicts that arise throughout the day.

The preschool and kindergarten unit focuses on introducing PATHS and on helping children gain better self-control. This unit, directed only to children who need it, is often a prerequisite for being able to access the remainder of the curriculum. Teachers or staff would use this unit with children who show significant language and/or cognitive delays or in small classes of children with severe behavior problems. The unit addresses self-control through the use of the Turtle Technique.

The Turtle Technique (Schneider, 1974) consists of a series of structured lessons accompanied by a reinforcement program that is individually tailored by each classroom teacher. 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 has 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 behaviors (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.

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 & Kusché, 1998) and one unpublished study (Kam, Greenberg, & Kusché, 1999) have evaluated PATHS. The intervention duration was up to 1 academic year; the longest follow-up was 4 to 5 years. Samples consisted of first- through sixth-grade African American and Caucasian students, as well as children who were deaf and students with special needs. Positive academic outcomes at posttest embraced significant improvements in reading comprehension among children who were deaf at all grade levels and higher scores on the Mazes subtest of the *Wechsler Intelligence Scale for Children-Revised* (WISC-R; Wechsler, 1974) among fourth- through sixth-grade children who were deaf. Positive social-emotional outcomes were reduced aggression and hyperactive-disruptive behavior (as rated by peers) among first graders in general education classes and more positive teacher-rated behaviors related to emotional adjustment, lower teacher-rated behavioral impulsivity, and higher parent-rated social competence among children who were deaf in Grades 1 through 6.

Observers in the study of first graders in general education rated intervention classrooms as more positive (children following rules, appropriately expressing emotions, showing interest and enthusiasm, staying on task) than control group classrooms. At follow-up, teachers reported smaller increases in problem behaviors among students with special needs who participated in the program than students with special needs in the comparison group over the 5-year period of study.

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 reporters and direct child measures and significant effects on internalizing symptoms. However, no significant reductions in externalizing behavior were reported by teachers or parents. As there are no published data to date on the efficacy of PATHS with preschoolers, the curriculum was not evaluated against the established criteria.

DISCUSSION

The search for studies supporting the efficacy of social-emotional curricula yielded a modest number. The programs summarized in this article were found in a wide variety of professional journals, from a wide variety of fields, included a diverse mix of children, used different terminology, and focused on various aspects of social-emotional interventions.

The sample sizes in the studies varied from 4 to 798 children. The studies involved comparison (Dubas et al., 1998) and random assignment control groups (Denham & Burton, 1996; Miller-Heyl et al., 1998; Ridley & Vaughn, 1982; Serna et al., 1999; Shure et al., 1972; Walker et al., 1998; Webster-Stratton & Hammond, 1997). Six measured the effectiveness of the intervention with direct behavioral observations of children at home or in preschool (Denham & Burton, 1996; Ridley & Vaughn, 1982; Serna et al., 1999; Shure et al., 1972; Walker et al., 1998; Webster-Stratton & Hammond, 1997).

All of the curricula targeted children with adjustment problem risk factors or externalizing behaviors such as aggression. Many studies focused on promoting the protective factors of positive peer relations and positive preschool experiences, although in most cases peer ratings remained stable. Four of the curricula targeted parenting skills in addition to intervening with children (*DARE to Be You*, *The Incredible Years*, *First Step*, *Self-Determination Curriculum*).

The duration of interventions and number of lessons varied widely. The number of lessons ranged from 12 to 140 and were implemented anywhere from 10 minutes, 3 times a week to 120 minutes, once a week. A majority of these studies used graduate students or mental health professionals to implement the intervention. Three programs trained teachers to administer the intervention (*DARE to Be You*, *Al's Pals: Kids Making Healthy Choices*, *First Step*).

Conclusions

In the evaluation of these eight programs, this review has noted some exceptional studies. Studies using large, diverse, well-described samples; random assignment, contact control groups; multiple measures (including direct observations of behavioral change and well-researched assessments to measure the effectiveness of the intervention); and measures of implementation fidelity and social validity of the treatment and outcomes engender confidence in their results. Furthermore, several programs moved beyond the typical 10-week, single modality intervention. These were long-term, multimodal, multiagent; occurred in multiple settings; were evaluated by multiple measures; and were well liked by their consumers.

Perhaps this review can set the stage for more empirically driven decisions. It is also important to note that ratings using these criteria are a dynamic process and that ongoing studies will likely enhance the ratings for a number of these curricula in the near term.

Research Implications

Examining the current body of research related to social-emotional curricula suggests six areas for additional re-

search. First, with no exception, these curricula have been implemented exclusively with at-risk populations and children with problem behaviors. Although this choice is certainly reasonable, many other populations of children with special needs, including children with mental retardation, autism spectrum disorders, attention-deficit/hyperactivity disorder, and learning disabilities, might profit from these curricula. We find a good match between the instructional foci of these curricula and the developmental needs evidenced by these additional populations of children; further, the instructional methods used in the most efficacious programs appear to be very apropos. Specifically, visual reminders, video-based modeling, multiple embedded learning opportunities, systematic use of reinforcers, and carefully planned contingencies have been demonstrated to be effective in teaching these populations. Obviously, however, the linguistic and cognitive complexity of some tasks and activities in these curricula would need to be modified to accommodate a more diverse target population.

Second, this area of inquiry contains no comparative studies. Given that all of these programs have some efficacy data and that they are known to vary in their intensity, complexity, and likely acceptability, comparative studies would seem to be appropriate at this time. Third, these social-emotional curricula often compete for teachers' and administrators' attention with other more "academic-directed" curricula. In light of the nationwide push toward high-stakes testing, it would not be surprising if school personnel would elect not to use social-emotional curricula in hopes of spending more instructional time to enhance academics. However, given the language and cognitive demands placed on children by these social-emotional curricula, their use might lead to improvements in these domains. No studies in this area have examined such preacademic outcomes, warranting future research.

Fourth, although many of these curricula are being used on a broad scale, data are lacking on the prerequisites that programs in general or individual participants need to be successful. Research on such skills could ultimately assist both curriculum developers and potential adopters.

Fifth, there is an urgent need in this area of inquiry (as well as other sound, evidence-based practices) to investigate variables that lead to the sustained use of quality practices. Finally, given that these curricula are conceptualized to be preventive in nature, it seems essential to examine long-term outcomes, costs, and benefits. While to date this has not been done, it seems likely that the initial and substantial behavior change associated with several curricula would result in substantial cost savings in regard to educational, health, mental health, and judicial services.

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