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What is This?

Treating Conduct Problems and Strengthening Social and Emotional Competence in Young Children:

The Dina Dinosaur Treatment Program

Carolyn Webster-Stratton and M. Jamila Reid

Young preschool and early-school-age children with early onset conduct problems are at high risk for school dropout, substance abuse, violence, and delinquency in later years. Consequently, developing treatment strategies for reducing conduct problems when aggression is in its more malleable form prior to age 8, and thus interrupting its progression, is of considerable benefit to families and society. This article describes a treatment program—the Dina Dinosaur Social, Emotional and Problem Solving Child Training Program—that was designed specifically with developmentally appropriate teaching methods for young children (ages 4 to 8 years) and based on theory related to the types of social, emotional, and cognitive deficits or excesses exhibited by children with conduct problems. The program emphasizes training children in skills such as emotional literacy, empathy or perspective taking, friendship and communication skills, anger management, interpersonal problem solving, school rules, and how to be successful at school. Emphasis is placed on ways to promote cross-setting generalization of the behaviors that are taught by involving parents and teachers in the treatment. A review of two randomized trials with this treatment approach and long-term results are provided.

OVERALL, NATIONAL SURVEY DATA have suggested that the prevalence of problematic aggressive behaviors in preschool and early-school-age children is about 10% and may be as high as 25% for low-income children (Webster-Stratton & Hammond, 1998). Without early intervention, emotional and behavioral problems (e.g., aggression, oppositional behavior, conduct problems) in young children may become crystallized patterns of behavior by age 8 (Eron, 1990), beginning a trajectory of escalating academic problems, school dropout, substance abuse, delinquency, and violence (Snyder, 2001; Tremblay, Mass, Pagani, & Vitaro, 1996). Clearly, treating aggressive behavior in its more malleable form prior to age 8, and thus interrupting its progression, is of considerable benefit to families and society.

Parent training programs have been the single most successful treatment approach for reducing oppositional defiant disorder (ODD) and conduct disorder (CD) in young children (Brestan & Eyberg, 1998). (Hereafter in this study these ODD/CD problems will be referred to as conduct problems because although most young children with behavior problems meet the criteria for a diagnosis of ODD, many of them also exhibit the aggressive and antisocial features listed as criteria for the diagnoses of CD but are not old enough to exhibit the criminal behaviors.) A variety of parenting programs have resulted in clinically significant and sustained improvements for at least two thirds of young children who are treated for these problems (for reviews, see Brestan & Eyberg, 1998; Taylor & Biglan, 1998). These experimental studies provided evidence supporting the social learning theories that highlight the crucial role that parenting style and discipline effectiveness play in (a) determining children's social competence and (b) reducing conduct problems (Patterson, De-Garmo, & Knutson, 2000).

Despite the clear evidence of the efficacy of parent training as a treatment approach, the approach does have some shortcomings. First, a number of studies have indicated that although parent training results in predictable improvements in child behavior at home, it does not necessarily result in improvements at school and with peers (Taylor & Biglan, 1998). In our own studies, teacher reports indicated that approximately one third of the

children with conduct problems whose parents received parent training continued to have clinical levels of peer problems and classroom aggression 3 years after treatment (Webster-Stratton, 1990b). Second, some parents of children with conduct problems cannot, or will not, participate in parent training because of work conflicts, life stresses, personal psychopathology, or lack of motivation. Third, some parents are receptive to parent training but have difficulty implementing or maintaining the strategies taught in parent training programs due to their own interpersonal and family issues or because of their child's difficult temperament (Webster-Stratton, 1990c).

These limitations in parent training have led to a second approach to treating conduct problems, that is, directly training children in social skills, problem solving, and anger management (e.g., Bierman, 1989; Kazdin, Esveldt, French, & Unis, 1987a; Lochman & Dunn, 1993; Shure, 1994). The theory underlying this treatment approach is based on a substantial body of research indicating that children with conduct problems display cognitive and behavioral social skills deficits when interacting with peers (Coie & Dodge, 1998; Dodge & Price, 1994). In a study comparing clinic-referred young children (ages 4–7 years) with conduct problems with a matched group of typically developing children, we found that the former displayed significantly more negative attributions, fewer prosocial problem-solving strategies, and a significant delay in social skills during play interactions with friends than did the latter (Webster-Stratton & Lindsay, 1999).

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., hyperactivity, impulsivity, and inattention); with problematic biological factors (learning and language delays); and from disadvantaged family backgrounds of environmental stress, abuse, and conflict may have particular difficulty in learning anger management, social skills, emotional regulation, and friendship skills. Because development of such skills is not necessarily automatic for these children, they need to be identified and targeted for additional intervention (Bredekamp & Copple, 1997).

The preschool and first grades are a strategic time to intervene directly with children who have early onset conduct problems, before negative behaviors crystallize. Research has shown that significant relationships exist among poor peer relationships in early childhood, early-onset conduct problems, and long-term social and emotional maladjustment (Loeber, 1985). In the absence of intervention, child conduct problems intensify after the child begins school, putting him or her at increased risk for peer rejection and poor social skills development (Loeber & Farrington, 2000). Before the middle grades, most children have had at least 5 to 6 years of experience with peer groups. Young children who are aggressive may have already established a pattern of social difficulty in the early elementary years that continues and becomes fairly stable by later elementary school. Many children with conduct problems have already been asked to leave four or five schools or group settings by the time they are 6 years old. By the middle school grades, the aggressive child's negative reputation, peer group rejection, and parental rejection may be well established (Coie, 1990). Even if the child learns appropriate social skills during the middle grades, this pattern of rejection may make it difficult for the child to use these skills to change his or her image. Intervening at a young age thus can help children develop effective social skills early and reduce their aggressive behaviors before these behaviors and reputations develop into permanent patterns.

A number of individual and small-group child-treatment programs designed to treat or prevent conduct problems by teaching social skills and problem solving have been evaluated (Bierman, 1989; Lochman & Wells, 1996; Shure, 1994). Thus far, this treatment approach has been promising but less effective than the parent treatment approaches (Asher, Parkhurst, Hymel, & Williams, 1990; Kendall, 1993). Controlled trial evaluations with diagnosed children have demonstrated that teaching social skills, problem-solving, and anger-management strategies is effective in reducing conduct problems (Kazdin, Siegel, & Bass, 1992; Webster-Stratton & Hammond, 1997) in the short term (effect sizes ranged from .20 to .67). Some programs appear to be limited in the generalization of changes to other settings (Gresham, 1995; Schneider & Bryne, 1985), however, and long-term effects could not be confirmed in several recent meta-analyses (Beelmann, Pfingste, & Losel, 1994; Gresham, 1998). In fact, these reviews suggested a decrease in effect sizes during follow-up. Most of these studies have been conducted as preventive programs in schools with heterogeneous populations without diagnostic classifications (Kazdin, Esveldt, French, & Unis, 1987b), and less is known about the effects of such programs in mental health clinics with young children with conduct problems. Out of 49 studies reviewed in the Beelmann et al. meta-analyses, only 3 were conducted in a mental health clinic.

The failure of parent- and child-treatment programs to consistently produce cross-setting generalization and long-term improvements in some children may stem from the intervention's narrow focus on a single risk factor. Most parent programs exclusively focus on training parents to manage children's social behavior at home rather than helping them to address their children's academic problems at school or relationship problems with peers. Parent training programs often fail to involve teachers in the treatment plans. Pull-out treatment groups focusing on children's social skills, on the other hand, do address children's social and emotional deficits but are often delivered without input from, collaboration with, or training for the child's parents or teachers, making generalization of new skills across settings difficult. For generalization across settings or time to occur, treat-

ments must include parents and teachers so that they can take advantage of naturally occurring incidents at home and school to reinforce the appropriate social behaviors. In addition, treatments for young children may not have been effective because either they were too cognitive in orientation (with not enough behavioral practice) and not geared to the developmental level of children in the preoperational phase of cognitive reasoning or they were not tailored to the specific needs of children with a particular diagnosis.

This article describes a treatment program specifically designed with developmentally appropriate teaching methods for young children (ages 4 to 8 years) and with the goals of tailoring the intervention strategies to the particular types of social, emotional, and cognitive deficits or excesses exhibited by children with conduct problems. The small-group treatment program called The Incredible Years Dinosaur Social, Emotional and Problem Solving Child Training Program (Webster-Stratton, 1990a) was first published in 1989 and emphasizes training children in skills such as emotional literacy, empathy or perspective taking, friendship and communication skills, anger management, interpersonal problem solving, school rules, and how to be successful at school. The intervention utilizes teaching methods that have been shown to be particularly effective for young children, such as puppet and videotape modeling, coaching and reinforcement during structured practice activities, visual imagery, fantasy play, and live role plays. In addition, efforts were made to carefully plan for generalization by asking parents and teachers to help by watching for and reinforcing specific skills whenever they noticed them at home or school.

PARTICIPANTS AND PROGRAM SETTING

Children who participated in the Dina Dinosaur Social Skills and Problem Solving Child Training Program (Webster-Stratton, 1990a) and its evaluation came from families who requested treatment at the University of Washington Parenting Clinic, a clinic in a large metropolitan area

that is regionally known for its 20-year history of treating young children with conduct problems. Families who requested treatment at the clinic agreed to random assignment to the parent-training, child-training, or waitlist control groups. About half the families seeking treatment were self-referred, and half were referred by professionals in the community. Eligibility criteria were as follows:

- The child was between 4 and 8 years old;
- the child had no history of psychosis and was not receiving any form of psychological treatment at the time of referral;
- the primary referral problem was child conduct problems (e.g., noncompliance, aggression, oppositional behaviors) for at least 6 months;
- the parents reported more than 10 child behavior problems (the recommended cutoff score for screening children for treatment of conduct problems) on the *Eyberg Child Behavior Inventory* (ECBI; Robinson, Eyberg, & Ross, 1980); and
- the child met the criteria for either ODD or CD from the *Diagnostic and Statistical Manual of Mental Disorders–Fourth Edition* (*DSM-IV*; American Psychiatric Association, 1994).

An initial phone screening established that the parents reported more than 10 problems on the ECBI. Children meeting the *DSM-IV* criteria for attention-deficit/hyperactivity disorder (ADHD) were also included because of the high co-morbidity of ODD and ADHD. At baseline assessment, 17.4% were classified as ADHD.

The sample consisted primarily of boys (80%) who were Caucasian (86%), with a mean age of 70 months. School level broke down as follows: 26%, preschool; 29%, kindergarten; 27%, first grade; and 29%, second grade. The mean number of pretreatment behavior problems according to the mother's ECBI Problem Score was 21, indicating that the children were in the clinical range according to Robinson et al. (1980; for the normative sample nonclinic range, $M = 7.1$, $SD = 7.7$). On the ECBI Problem

scale, 80.9% of our sample had scores above the 90th percentile of the normative sample (> 16). Home observations prior to treatment confirmed the ECBI parent reports, with 51.6% of the children exhibiting one or more deviant and noncompliant behaviors every 3 minutes.

PROGRAM CONTENT AND GOALS

The Dina Dinosaur Treatment Program targets children with conduct problems, but it is also appropriate for addressing comorbid problems such as attention problems and peer rejection. The curriculum consists of 18 to 22 weekly 2-hour lessons. It can be delivered by counselors or therapists in a mental health–related field or by early childhood specialists who have experience treating children with conduct disorders or early-onset behavior problems. Therapists receive extensive training in the content and methods of the treatment program. They use comprehensive group leader manuals that describe each session's content, objectives, videotapes to be shown, and small-group activities. Treatment integrity is monitored through session-by-session protocols and unit checklists completed by therapists as well as by supervisor and peer videotape reviews. This program is an ideal companion to the Incredible Years parent programs. The 22-session parent group and the child training group can be offered concurrently. (This arrangement also helps with parents' childcare needs, so the parents can attend parent sessions knowing their children are well cared for.) In the material to follow, we provide a brief description of and rationale for each of the treatment components (see Note).

How to Do Your Best in School (Apatosaurus and Iguanodon Programs)

When working with children with conduct problems, gaining their cooperation and compliance is key to being able to socialize and teach them. Research has indicated that these children are noncompliant about 80% to 90% of the time a request is made of them by parents or

teachers (Webster-Stratton & Lindsay, 1999); therefore, one of the first tasks of this treatment program that is somewhat different from other social skills programs is teaching compliance training procedures. Initial group sessions focus on the importance of group rules such as following directions, keeping hands to selves, raising a quiet hand, using a polite and friendly voice, and so forth. Rules are demonstrated, role played, and practiced with the children using life-sized puppets. Incentives ("dinosaur chips") are given to the children for following the rules. The children also learn that a time out is the consequence for hitting or hurting someone else (two of the most important Dinosaur rules are "using words to express feelings" and "using gentle touch"). Therapists clearly describe the time out or calm down procedure for hitting, and the children watch a videotape scene of a child going to time out and staying calm. Next, the puppets are used to model all the steps involved in taking an appropriate time out, and the children practice the steps. The children are coached to use positive self-statements while in time out and are taught to help their friends in time out by ignoring them until they return to the group. Time out is framed as time away to think and calm down before trying again. When a child returns to the group after a time out, the therapists look for the first opportunity to reengage him or her and offer praise for appropriate behavior. Time out is conducted in the least restrictive way possible. Children are initially asked to go sit in a time out or calm down chair (or turtle chair) that is placed at the back of the group room (low-level whining and wiggly behavior are ignored as long as the child is in close proximity to the time out chair). Children who will not stay in the chair or who become very disruptive are given one warning before they are escorted to a separate room to complete their time out.

Understanding and Detecting Feelings (Dina Triceratops Program)

Once the group rules and expectations have been discussed, modeled, practiced,

and reinforced, the children are ready to move on to content on emotional literacy. Children with conduct problems often have language delays and a limited vocabulary for expressing their feelings, which contribute to their difficulties in regulating emotional responses (Frick et al., 1991; Sturge, 1982). They may also have negative feelings and thoughts about themselves and others and difficulty perceiving another's point of view or feelings different from their own (Dodge, 1993). They have difficulty reading facial cues and distort or underutilize social cues (Dodge & Price, 1994).

The Triceratops feelings program is designed to help these children learn to regulate their own emotions and to accurately identify and understand others' feelings. The first step in this process is to help children identify their own feelings and be able to accurately label and express these feelings to others. Therapists play a critical role in helping the children learn to manage their feelings of anger or disappointment by helping them to (a) talk about the feelings, (b) think differently about why an event occurred, (c) respond appropriately to situations that cause emotional arousal such as being teased or left out, and (d) employ self-talk and relaxation strategies to keep themselves calm. Through the use of laminated cue cards and videotapes of children demonstrating various emotions, the children learn how to discuss and understand a wide range of feeling states. The unit begins with basic feelings: *sadness, anger, happiness* and *fright* and progresses to more complex feelings such as *frustration, excitement, disappointment, loneliness, embarrassment*, and *forgiveness*. The children are helped to recognize their own feelings by checking their bodies and faces for "tight" (tense) muscles, relaxed muscles, frowns, smiles, and sensations in other parts of their bodies (e.g., butterflies in their stomachs). Matching the facial expressions and body postures shown on cue cards helps the children to recognize the cues from their own bodies and to associate a word with these feelings.

Next, the children are guided in using their detective skills to look for clues in another person's facial expression, be-

havior, or tone of voice to recognize what the person may be feeling and to think about why he or she might be feeling that way. Video vignettes, photos of sports stars and other famous people, and pictures of the children in the group are all engaging ways to provide experience in "reading" feeling cues. Games such as Feeling Dice or Feeling Bingo are played to reinforce these concepts. Nursery rhymes, songs, and children's books provide fun opportunities to talk about the characters' feelings, how they cope with uncomfortable feelings, and how they express their feelings. As the children become more skilled at recognizing feelings in themselves and others, they begin to learn empathy, perspective taking, and emotion regulation.

The children also learn strategies for changing negative (angry, frustrated, sad) feelings into more positive feelings. Wally (a child-sized puppet) teaches the children some of his "secrets" for calming down (take a deep breath, think a happy thought). Games, positive imagery, and activities are used to illustrate how feelings change over time and how different people can react differently to the same event (the metaphor of a "feeling thermometer" is used, and the children practice using real thermometers in hot and cold water to watch the mercury go from "hot and angry" to "cool and calm"). To practice perspective taking, role plays that use scenarios in which the child takes the part of the teacher, parent, or another child who has a problem are employed. The puppets are used to model how to talk about and cope with different feelings. This work on feelings is integrated into and underlies all the subsequent units in this curriculum.

Detective Wally Teaches Problem-Solving Steps (Stegosaurus Program)

Children who are hyperactive, impulsive, inattentive, and aggressive have been shown to have cognitive deficits in key aspects of social problem solving (Dodge & Crick, 1990). Such children perceive social situations in hostile terms, generate fewer prosocial ways of solving interpersonal

conflict, and anticipate fewer consequences for aggression (Dodge & Price, 1994). They act aggressively and impulsively without stopping to think of nonaggressive solutions or of the other person's perspective, and they expect their aggressive responses to yield positive results. There is evidence (Dodge, Pettit, & Bates, 1994) that children who employ appropriate problem-solving strategies play more constructively, are better liked by their peers, and are more cooperative at home and school. Consequently, in this next program of the intervention, therapists teach children to generate more prosocial solutions to their problems and to evaluate which solutions are likely to lead to positive consequences. In essence, these children are provided with a thinking strategy that corrects the flaws in their decision-making process and reduces their risk of developing ongoing peer relationship problems.

Children learn a seven-step problem-solving process:

1. How am I feeling, and what is my problem? (define problem and feelings)
2. What is a solution?
3. What are some more solutions? (brainstorm solutions)
4. What are the consequences?
5. What is the best solution? (Is the solution safe? fair? Does it lead to good feelings?)
6. Can I use my plan?
7. How did I do? (evaluate outcome and reinforce efforts)

A great deal of time is spent on Steps 1, 2, and 3 to help the children increase their repertoire of possible prosocial solutions (e.g., trade, ask, share, take turns, wait, walk away, take a deep breath). In fact, for the 3- to 5-year-olds, these three steps may be the entire focus of the unit. One to two new solutions are introduced in each session, and the children are given multiple opportunities to role play and practice these solutions with a puppet or another child. Laminated cue cards with pictures of more than 40 solutions are provided in Wally's "detective kit" and are used by the children to generate possible solutions

and evaluate whether they will work to solve particular problems. Children role play solutions to problem scenarios introduced by the puppets, the video vignettes, or the children themselves. In one activity, the children draw or color their own solution cards so that each child has his or her own detective solution kit by the end of the unit. The children are guided to consult their own or the group solution kit when a real-life problem occurs. Activities for this program include writing and acting in a problem-solving play, going "fishing" for solutions (with a magnetized fishing rod), and working as a group to generate enough solutions to join Wally's Problem-Solving Detective Club.

Detective Wally Teaches Problem-Solving Steps (T-Rex Program)

Aggression and inadequate impulse control are perhaps the most potent obstacles children with conduct problems face with regard to effective problem solving and forming successful friendships. Without help, these children are more likely to experience ongoing peer rejection and continued social problems for years afterwards (Coie, 1990). Such children have difficulty regulating their negative affect in order to generate positive solutions to conflict situations. Furthermore, there is evidence that aggressive children are more likely to misinterpret ambiguous situations as hostile or threatening. This tendency to perceive hostile intent in others has been seen as one source of their aggressive behavior (Walker, Colvin, & Ramsey, 1995).

Consequently, once the basic skills for problem solving have been acquired, the children are taught anger management strategies. Anger management programs based on the work of Novaco (1975) have been shown to reduce aggression in aggressive middle and high school students and to maintain gains in problem-solving skills (Lochman & Dunn, 1993). Clearly children cannot solve problems if they are too angry to think calmly. A new puppet, Tiny Turtle, is used to teach the children a five-step anger management strategy:

1. Recognize anger.
2. Think "stop."
3. Take a deep breath.
4. Go into your shell and tell yourself, "I can calm down."
5. Try again.

Tiny's shell is the basis for many activities: making a large cardboard shell that children can actually hide under, making grocery bag "shells" or vests, molding Playdough shells for small plastic figures (the children pretend the figures are mad and help them to calm down in the Playdough shells), and making teasing shields. Each of these activities provides multiple opportunities for the therapist to help the children practice the steps of anger management. Children learn to recognize the clues in their bodies that tell them they are getting angry and to use self-talk, deep breathing, and positive imagery to help themselves calm down. Therapists also use guided imagery exercises with the children (having them close their eyes and pretend to be in a cocoon or turtle shell) to help them experience the feelings of being relaxed and calm.

Videotapes of children handling anger, being teased, or being rejected are used to trigger role plays to practice these calming strategies. In addition, the puppets talk to the children about problems (e.g., a parent or teacher was mad at them for a mistake they made, they were left out of a birthday party, a parent is getting divorced or doing something that disappoints them). The situations that the puppets bring to the group are formulated according to experiences and issues relevant to particular children in the group. For example, if a child in the group is teased at school (and is reacting in an aggressive or angry way), Wally might tell the group that someone at school called him a name and Wally was so mad that he hit the person. Wally would then talk about the consequences of hitting (he felt bad afterwards, and he got in trouble). The group would then generate alternative solutions for Wally and would help him practice them. The child who has this same difficulty at school would often be chosen to act out an appropriate solution with Wally.

Throughout the discussion of vignettes and role-play demonstrations, the therapists and puppets help the children to change some of their attributions about events. For example, Molly Manners (Wally's sister) explains, "Maybe he was teasing you because he really wanted to be your friend but didn't know how to ask you nicely" or, "You know, all kids get turned down sometimes when they want to play; it doesn't mean they don't like you" or, "I think that it was an accident that he bumped into you." The Pass the Hat Detective Game is played to help the children determine when an event might be an "accident" versus when it might be done "on purpose" and how each event could be handled.

Molly Manners Teaches How to Be Friendly (Allosaurus and Brachiosaurus Programs)

Children with conduct problems have particular difficulty in forming and maintaining friendships. Our research, and that of others, has indicated that these children have significantly delayed play skills, including difficulties waiting for a turn, accepting peers' suggestions, offering an idea rather than demanding something, or collaborating in play with peers (Webster-Stratton & Lindsay, 1999). They also have poor conversation skills, difficulty in responding to the overtures of others, and poor group-entry skills. Consequently, in the friendship program we focus on teaching children a repertoire of friendly behaviors such as sharing, taking turns, asking, making a suggestion, apologizing, agreeing with others, and giving compliments. In addition, the children are taught specific prosocial responses for common peer situations. An example would be entering a group of children who are already playing:

1. Watch from the sidelines and show interest.
2. Continue watching and give a compliment.
3. Wait for a pause.
4. Ask politely to join in and accept the response.

As with other new material, the children see these friendship skills modeled by the puppets or in videotape examples and practice using them in role plays and co-operative games.

PRESENTATION METHOD FOR SMALL-GROUP PROGRAM

Methods and processes for teaching social skills to young children must fit with the children's learning styles, temperaments, and cognitive abilities. Within the 4- to 8-year-old age range, vast differences exist in children's developmental abilities. Some children in a group may be reading fluently, other children may not read at all. Some children will be able to grasp relatively complicated ideas, such as how to evaluate possible future consequences of an action, while others are operating in the "here and now," with little ability to predict results. The Dinosaur Program provides relevant content areas for the preschool to early-elementary-school group. A skilled therapist will then use developmentally appropriate practices to present the material to the child in any given group according to the goals for that child. The following sections provide guidelines for organizing groups and for tailoring the delivery of the program according to the needs of a particular group.

Selecting Children for Groups

Children's ages within the preschool and early-elementary-school groups can vary from age 4 to 8 years. We believe this mix is optimal because children who are more mature can model language for the younger children and can participate in leadership and helping roles. It also means that the entire group will not be composed of wiggly, nonverbal children. We suggest selecting pairs of children of similar age (or developmental level) so that each child has at least one peer who is performing at the same level. Mixed-gender groups work well; however, it is important not to have a group with only one girl (many more boys than girls exhibit the conduct problems used to select children for these groups, so most groups will be predomi-

nately made up of boys). For practical reasons, we also recommend that groups be composed of children who represent a mix of temperament styles and that each group have no more than 5 to 6 children.

Preparing for the Session

First, therapists plan and prepare each week's session, noting the objectives and tailoring role plays and teaching strategies according to the target goals for each child in the group based on functional assessment procedures, behavior plans, and targeted negative and positive behaviors (Bear, 1998; Wolery, 2000). Therapists also prepare activities that are designed to provide practice opportunities on the new skill for every child. The therapists communicate with their co-leader about which behaviors they will ignore and which they will praise or reward to promote specifically targeted social skills. The therapists think about whether the day's activity needs some adaptation for a child with more or less advanced developmental skills.

Schedule for Two-Hour Session

When children arrive, they share the dinosaur homework that they have done during the week (and receive compliments and dinosaur tokens for completing it). The opening discussion lasts 15 to 20 minutes. After this introductory time, new content is presented. Although the Dinosaur curriculum is child focused and individualized for different developmental levels or family situations, it is important that structured learning occur in each session. This learning is interactive, engaging, fun, and paced at the level of the children in the group. The goal is to present new ideas or content so the children begin to increase their repertoire of ideas and responses. This plan to present new material to children in a structured small-group circle time is paired with the idea of taking advantage of teachable moments that occur naturally among the children during the time they are in the group.

The videotapes and puppets are used to present content, which is then processed

during discussions, problem solving, role plays, and collaborative learning. After each vignette, the therapist solicits ideas from the children and involves them in the process of problem solving, sharing, and discussing ideas and reactions. To enhance generalization, the scenes selected for each of the units involve real-life situations at school (e.g., playground and classroom) and home. Some vignettes represent children behaving in prosocial ways, such as helping their teachers, playing well with peers, or using problem solving or anger management techniques. Other vignettes provide examples of children who are having difficulties in conflict situations, such as teasing, arguing, and destructive behavior. The videotapes show children of differing ages, genders, and cultures interacting with adults (parents or teachers) or with other children. After viewing the vignettes, the children discuss their feelings, decide whether the examples are good or bad choices, generate ideas for more effective responses, and role-play alternative scenarios. Although some mild negative videotape examples are shown so that children can show how they would improve the situation, the program uses a far greater number of positive examples than negative examples (about 5 to 1), and the children are coached to help solve or resolve any problems that they see in the vignettes. The children are *never asked to act out the inappropriate responses*.

After 50 minutes, the children take a snack break, which provides an opportunity for the therapist to coach and praise prosocial behavior and the use of new skills in real life. Therapists also model and coach appropriate social skills as they participate in the snack time. After snack time, the children participate in activities related to that session's content. They might work on a cooperative poster or play a board game that involves turn-taking and waiting patiently. During the last 10 to 15 minutes of the session, one group leader leaves the group to meet with the parents and give a summary of the session content for the day. Parents are given recommendations for home activities that will reinforce the child's new learning. During this time, another therapist helps

the children count their dinosaur chips, which are turned in for prizes from Dina's special box. This is followed by a compliment circle time and a review of homework activities. Each week, the children have Dinosaur homework activities to complete at home with their parents. The parents are asked to sign the home activities so the therapist knows that the parent is being exposed to the content and helping the child with the assignments.

Puppets as Models

The therapists use child-size boy and girl puppets to model appropriate child behavior. There is also a dinosaur puppet (Dina Dinosaur) who is the director of Dinosaur School, teaches school rules and rewards, and praises the children who are doing well. The puppets, Wally and Molly, help narrate the video vignettes and ask the children for help with common conflict situations they have encountered (based on the problems of the children in the group). Other puppets regularly visit the group (e.g., Oscar the Ostrich hides his head in the sand and has difficulty talking about his problems; Freddy Frog cannot sit still). Particularly when working with diverse populations, a variety of puppets representing the ethnicity and gender of the children in the group are used. The puppets are an integral part of the program's success because they evoke the children's imaginations. Young children are enthralled with the puppets and will talk about sensitive or painful issues with a puppet more easily than with adults. The puppets quickly become real to the children and are very effective models.

Live and Videotape Modeling and Role-Playing Methods

In accordance with modeling and self-efficacy theories of learning (Bandura, 1989), children using the program develop their skills by watching (and modeling) videotape examples of key problem-solving and interpersonal skills. Videotape provides a more flexible method of training than didactic instruction or sole reliance on role play; that is, it allows for portrayal of a wide variety of models, sit-

uations, and settings for the children to watch and discuss. This flexible modeling approach results in better generalization of the training content and, therefore, better long-term maintenance. Furthermore, it is an engaging method of learning for children who are less verbally oriented, younger children, or children with short attention spans. The program thus makes heavy use of modeling—live modeling, behavioral practice with the puppets, and videotape modeling.

Videotape scenes and puppet role plays serve as stimuli for the children to talk about, demonstrate, and practice different solutions or feelings or thoughts. Role playing provides opportunities to practice new skills and experience different perspectives. For example, a difficult situation involving being left out or teased may be role played with the puppet. The puppet will ask the children how to respond to this feeling or experience. When the children generate suggestions, they are asked to act them out with the puppet. The puppet then demonstrates what he or she has learned from the children to see if he or she has understood it correctly. One activity children play is the "Let's Suppose" Game or the Pass the Detective Hat Game. A variety of problems (selected on the basis of issues relevant to the group) are put in a hat, which is passed around the circle. When the music stops, the child holding the hat picks out the problem and suggests a solution. Someone else will try to act out that solution for all to see. For example, a problem situation might be the following: "Suppose you asked to play soccer with some kids and they wouldn't let you play. What would you do?" With children ages 4 to 6, the role playing can be acted out by a child and the therapist's puppet while the second group leader sits with the remaining children and helps them think of alternative responses. Older children put on skits in pairs, with one therapist acting as a coach.

Practice Activities— Coaching/Cueing/Reinforcing

For each of the sessions, choices can be made from a series of activities for practicing the skills targeted in that session.

For example, a friendship session about sharing might be paired with an art project where there are limited supplies and students have to figure out how to share. During a session on cooperation, children might be asked to design a dinosaur that incorporates everyone's ideas. In the problem-solving unit, children might be given a problem and asked to think of as many solutions as they can. The problems might be presented on a colorful cue card or in a problem-solving book. Children who are reading and writing can read the problem and write solutions; nonreaders could dictate or draw a picture of their solutions. Children might also look in the "detective kit" (a box that contains all the solutions that children have learned) for more solutions.

During the activity, children are usually divided into two groups of three children. For some activities, children might be divided along developmental lines, with more advanced children doing a harder version of the same activity than less advanced children. Other times, developmental levels may be mixed so that more advanced children can help the younger children. A therapist sits with each group of students, coaching and commenting on prosocial behavior. We often describe this kind of descriptive commenting as being like a "sports announcer." Dinosaur chips can often be earned for prosocial behaviors during these activities.

Most of the practice activities described in this program help strengthen writing, reading, sequencing, vocabulary, and discrimination skills, enhancing academic and social competence. For example, reading is enhanced through use of the laminated cue cards, the Wally problem-solving detective books, and homework activities books; activities promote communication, language, and writing skills through written stories, pictures of solutions, and play acting. Laminated cue cards are provided for all of the major concepts. These cards show a picture (e.g., sharing or quiet hand up) as well as the words that describe the concept. These picture cue cards are very helpful for children who cannot read and are useful nonverbal cues to remind children of a partic-

ular skill on which they might be working. For example, the therapist might point to a picture of Wally sharing to remind a child of the desired behavior in the group, or a child who is beginning to get angry might be prompted to use the Tiny STOP signal or the anger thermometer as a cue to use a self-calming activity. When the children respond to these visual cues, the therapist reinforces their accomplishment. The problem-solving unit provides an opportunity for a discussion of sequencing as the children learn the steps to solving their problems. All of the sessions offer opportunities for promoting effective learning behaviors, such as verbal and nonverbal communication skills that include collaborating, cooperating, listening, attending, speaking up, and asking questions. These are key skills for learning and attaining success in the classroom.

Integration of Cognitive, Affective, and Behavioral Components

Each unit uses this combination of cognitive, affective, and behavioral components to enhance learning. For example, the anger thermometer is used to teach children self-control and to monitor their emotional state. Children decorate the thermometer with pictures of feeling faces from "happy" and "relaxed" in the blue (or cool) section of the thermometer all the way up to "angry" or "stressed out" in the red (or hot) section of the thermometer. The therapist can then ask a child to describe a recent conflict, and together they retrace the steps that led to the angry outburst. The therapist writes down the child's thoughts, feelings, and actions that indicated an escalating anger pattern, for example, "He always takes my toys" (thought), "That really makes me mad" (feeling). "I got so mad that I kicked him" (action). The therapist and the child discuss thoughts, words, and actions that the child can use to reduce his or her anger. As the therapist retraces the steps of the angry outburst, she or he helps the child identify the place where the child was aware that he or she was getting angry. This is marked as the "Danger Point" on

the thermometer. Once the child has established this danger point, he or she chooses a name that will be the signal for reaching that point (e.g., chill out, cool down, code red, hot engine). This code word will be the teacher and child's signal that anger or stress has reached the threshold and will trigger the use of an agreed-upon calming strategy, such as taking three deep breaths.

Fantasy Play and Instruction

Fantasy play provides the context for this program because a high level of sociodramatic play in early-school-age children is associated with sustained and reciprocal verbal interactions and high levels of affective role taking (Connolly & Doyle, 1984). Fantasy play gives children the opportunity to develop intimacy and work out emotional issues (Gottman, 1983). For preschool-age children, sociodramatic play is an important context in which perspective taking, social participation, group cooperation, and intimacy skills develop. This important skill can easily be fostered through the use of the child-sized human puppets.

Promoting Skills Maintenance and Generalization

Because the children are learning these skills in a setting removed from the classroom and home environments, the therapists must do everything they can to promote generalization of skills to other settings. Therapists should look for opportunities to praise and coach prosocial behavior even during less structured times, such as in the waiting room before the group starts, snack time, bathroom breaks, and transitions. For each main intervention component, parents and teachers are sent letters explaining the content of the unit (e.g., expressing feelings, sharing, problem solving) and suggesting ways they can reinforce these behaviors at home and at school. Several times during the program, phone calls are made to parents and teachers to tell them about the children's successes, which behaviors to reinforce, and which ones to ignore. Parents

and teachers need to offer praise and reinforcement whenever they see the children using these prosocial behaviors in naturally occurring settings. The homework assignments, which children complete with parents each week, also reinforce these concepts and help parents to learn and understand the same terminology that their children are using in Dinosaur School so that there is cross-setting consistency in responses from therapists and parents.

Group Management

The implementation of the Dinosaur program is dependent on the variety of therapeutic processes and methods described in this article. A final key element of successful group therapy with children who have conduct problems is utilizing research-based group-management strategies (e.g., incentives and time out; Brophy, 1996). In order to be able to teach these difficult children and provide a safe environment for them, the therapists must manage oppositional and aggressive behaviors extremely well. Research has shown that when children with conduct problems are placed in groups, they may reinforce each other's antisocial behaviors and actually become worse instead of better if their negative behaviors are not managed well (Dishion, McCord, & Poulin, 1999). A well-managed group with consistent rules and limits can provide these children with one of the first opportunities they have ever had to be successful in a learning environment with their peers. In fact, after an initial testing period, most children with conduct problems who participate in these groups enjoy coming to group, follow the rules consistently, and make some of the first positive friendships they have ever had. Group leaders work together, and in consultation with parents and classroom teachers, to develop individual behavior plans for each child in the group. Thus, although all of the children are expected to follow basic group rules, one child may have a special program designed to decrease rude talk, another child might be working on remembering to think before impulsively blurting out answers, and a third child might be working

on listening carefully to adult instructions. In this way, the particular issues of each child can be addressed in a group context.

Program Evaluation

The Dinosaur treatment program has established short-term and long-term effectiveness with clinic-referred young children (ages 4–8 years) with conduct problems in two randomized control group studies (Webster-Stratton & Hammond, 1997; Webster-Stratton, Reid, & Hammond, 2001, 2003). In the first randomized trial with 97 clinic-referred children (ages 4–7 years), families were randomly assigned to one of four groups: child training only (CT), parent training only (PT), combined parent and child training intervention (PT + CT), or waiting list control (WLC). Children attended the Dinosaur program in small groups of six for 2 hours per week for 18 weeks. Parents in the PT condition attended 22 weekly parenting sessions. Parents in the combined programs attended parent groups while their children participated in the child training Dinosaur program. Families in the waiting list control condition waited 8 to 9 months and then were randomly assigned to one of the three intervention conditions.

Families were assessed at baseline, 2 months after the intervention was completed, and 1 and 2 years posttreatment. Assessments included parent and teacher reports of behavior problems on standardized measures, observations of parent–child interactions at home by observers who did not know what treatment condition families received, child problem-solving testing, and laboratory observations of children playing with a friend. There were no significant differences among the groups on variables at baseline.

At posttreatment, results showed that the combined parent and child training was more effective than parent training alone and that all three intervention conditions were superior to the control group. The CT program by itself resulted in significant improvements in observed peer interactions as well as number of different positive solutions on the WALLY social problem–solving test (Webster-

Stratton, 1990d). Children who had received the Dinosaur curriculum were observed to be significantly more positive and less negative in their social interactions with peers than children whose parents received PT only or than controls. Parents in the conditions that included PT demonstrated significantly more positive parenting behaviors (including praise and positive affect) and parent collaboration, and they reported fewer behavior problems than control families on the *Child Behavior Checklist* (Achenbach & Edelbrock, 1991). These parents also demonstrated significantly more mother praise and parent collaboration than families receiving only CT (see Figure 1).

One year later, all significant changes noted at posttreatment were maintained. All three treatment groups reported significantly fewer child behavior problems, fewer targeted negative behaviors, less spanking, more positive behaviors, better child problem-solving skills, and lower parenting stress levels compared to baseline. In addition, observers rated all the intervention children as demonstrating significantly less deviance and more positive affect at home, compared to posttreatment, indicating that the children continued to show improvements in the year following treatment. In addition, children in both the CT and PT + CT treatment groups showed maintenance over time in their ability to generate positive social problem–solving strategies in response to hypothetical conflict situations on the WALLY test. Analyses of the subsample of children who scored in the abnormal range on teacher reports at baseline ($n = 54$) revealed significant improvements for all treated children at the 1-year follow-up. Analyses of the clinical significance (measured by a 30% reduction in observed total child deviant behaviors at home) revealed that the PT + CT group showed the most sustained effects in child behavior, with 95% of the children demonstrating a clinically significant reduction in deviant behaviors, compared with 74% of the CT only condition and 60% of the PT only condition (Webster-Stratton & Hammond, 1997). The difference between the PT + CT and PT groups was significant ($p < .01$), indicating the additive

effects of CT. Consumer satisfaction continued to be high at follow-up for all treatment conditions, with 95% of mothers and 100% of fathers reporting improvement in their children's behavior.

Despite these positive changes in observed behavioral interactions with peers and in assessments of social problem solving by parents, the behavior changes in the classroom immediately posttreatment were nonsignificant according to teacher reports. This finding may have been due to limited power because only half of the sample of children had clinically significant problems at baseline according to the teachers (thus creating a floor effect). When we looked at the subsample of problem children separately, we did find significant effects. We postulated several other reasons for the teachers' modest effects as well. First, although the teachers were consulted by telephone, sent information about the program, and asked to reinforce specific prosocial behaviors, they received no direct training in behavior management or the curriculum, and they were not monitored in regard to whether they followed through with the program suggestions. As we have noted earlier, negative academic and social experiences in the school setting have been shown to contribute to the ongoing development of conduct problems. Teachers with poor classroom-management skills and low rates of praise have classrooms with higher levels of aggression and rejection, which in turn have been shown to influence the continued development of individual children's continued conduct problems (Kellam, Ling, Merisca, Brown, & Ialongo, 1998).

In light of these findings, our next evaluation of the child interventions included a teacher training component (Webster-Stratton & Reid, in press) targeted at specific classroom risk factors (classroom management skills, behavior plans, and collaboration with parents). This teacher training was offered in combination with small-group child social skills training for treating young children with ODD. No studies existed that examined the added benefits of pairing teacher training with child training to treat young children with ODD.

Effect Sizes by Treatment Condition for # of Positive Solutions on the Cognitive Social Problem-Solving Test
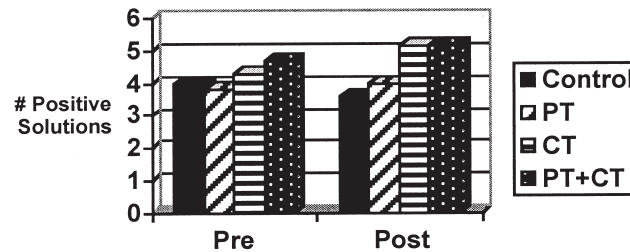
Effect Sizes by Treatment Condition for Laboratory Observation of Peer Interactions: Negative Conflict Management
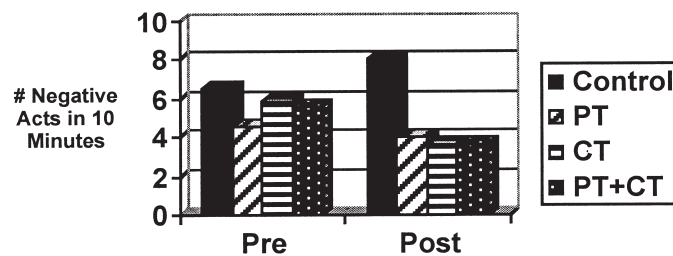
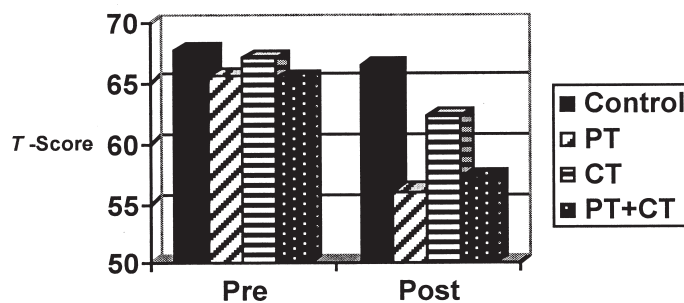**Effect Sizes by Treatment Condition for Mother Reports of Behavior Problems (CBCL)**

FIGURE 1. Graphs based on data from Webster-Stratton and Hammond (1997). Effect sizes (*d*): Top panel: CT versus Control, .79 (*p* < .05); PT + CT versus Control, .69 (*p* < .05); PT versus Control, .25. Middle panel: CT versus Control, .58 (*p* < .05); PT + CT versus Control, .54 (*p* < .05); PT versus Control, .46 (*p* < .05). Bottom panel: CT versus Control, .38; PT + CT versus Control, .73 (*p* < .05); PT versus Control, .89 (*p* < .05). CBCL = *Child Behavior Checklist* (Achenbach & Edelbrock, 1991).

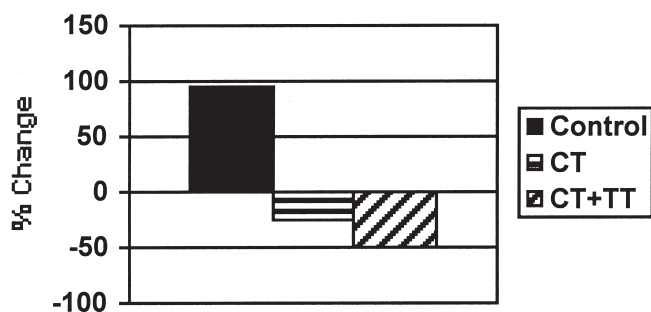## % Change in Classroom Observations of Aggression From Baseline to Post Treatment

FIGURE 2. Data from Webster-Stratton, Reid, and Hammond (2003). CT versus Control, *d* = .50 (*p* < .05); CT + TT versus Control, *d* = .66 (*p* < .05).

TABLE 1
Effect Sizes (Cohen's *d*) for CT and CT + TT Groups Compared to Controls on Composite Scores

Composite domains	CT vs. control	CT + TT vs. control
Mother negative parenting	.51	.51
Child negative at home/mother	.41	.55
Child positive with peers	.35	.29
Child negative at school	.41	.41
Teacher negative	.35	.46

Note. CT = child training only; TT = teacher training; Cohen (1988) *d* = .2, small effect; *d* = .5, moderate effect; *d* = .8, large effect.

The Incredible Years child and teacher training curricula were evaluated in a randomized trial with 159 clinic-referred families with children (ages 4–8 years) who had been diagnosed with early onset ODD/CD (*DSM-IV*) according to the procedures outlined previously for the first study. Families (85% Caucasian) were randomly assigned to child training only (Dinosaur curriculum, CT), CT combined with teacher training (CT + TT), or a waiting list control (other conditions involving parent training also evaluated in this study are described elsewhere (Reid, Webster-Stratton, & Hammond, in press; Webster-Stratton et al., 2003). The 18-week child training program was identical to that described above. The TT component consisted of four full-day workshops offered monthly and a minimum of two school consultations wherein the parents and the child's small-group therapist met with the child's teacher to plan an individual behavior plan. Regular calls were made to teachers to support their efforts and to keep them apprised of the progress of the child. Families in the waiting list control condition waited 8 to 9 months and then were offered treatment.

Assessments were conducted at baseline, 2 months after the intervention was completed, and 1 year and 2 years post-assessment. All of the same assessments from the study described earlier were used, along with independent school observations. All of the children were observed at school on four occasions during structured and unstructured times at each assessment phase. Following the 6-month intervention, children in the CT and CT + TT conditions were significantly less negative at home and at school (with teachers and peers) according to parent and teacher reports as well as independent observations at home and in the classroom at school. Children in the CT and CT + TT groups showed more prosocial skills with peers than did children in the control groups. To our surprise, mothers and teachers of children in both the CT and CT + TT groups were also less critical in their interactions with the children. All TT conditions resulted in teachers who were significantly less critical, more nurturing, and more consistent compared to control teachers (Webster-Stratton et al., 2003). The graphs in Figure 1 represent composite scores for several domains of interest; these composite scores contain both report and observational data; consequently, they are a more robust measure of treatment effectiveness than single measures. In all of the results presented, CT and CT + TT are significantly different from control but not from each other (see Figure 2). Table 1 presents effect size comparisons for CT versus control and CT + TT versus control for all of the domains measured.

In an additional analysis, we combined the sample of children from both these studies to look at how biological risk factors (inattention, impulsivity, hyperactivity), parenting risk factors (critical and physically violent discipline), and family stress risk factors (marital conflict, social class, depression, negative life stress, anger) affected the CT group outcome. The only risk factor related to failure to improve problems of child conduct after CT treatment was negative parenting (i.e., critical statements and reports of physical force; Webster-Stratton et al., 2001).

SUMMARY

The results of these two studies indicated that of the two single risk factor interventions, the PT approach was superior to the CT approach in terms of child behavior improvements (as reported by parents), parenting behaviors (as observed by in-

dependent raters), and consumer satisfaction. Intervention involving CT was superior to PT in terms of child social problem–solving and conflict-management skills with peers (as tested and observed, respectively). Combining PT with CT (the two risk factors model) produced more significant improvements across a broader range of outcome variables. TT did appear to add significantly to CT in terms of reductions of observed physical aggression in the classroom. For the target child in school 6 hours per day, changes amounted to 25% (CT) to 50% (CT + TT) fewer physically aggressive acts with peers post-treatment, from a mean of 24 acts per day at baseline to 12 per day, whereas control group children increased by 100%. Moreover, one would expect that the trained teachers' responses would affect not only the target child but also other children in the classroom. It was encouraging to find that effects (maintained at the 1-year follow-up) were consistent in the CT condition as well as the PT condition according to parent and teacher reports and independent observations with peers and parents.

These findings related to the CT intervention are of particular interest because they indicate that the CT program not only enhanced parent training outcomes but by itself resulted in sustained improvements in conduct problems and social problem solving across time and settings (moderate effect sizes were found for child negative behavior at home and school). Our data indicate that the social problem–solving skills learned in the program and demonstrated by the children when tested were actually used when the children were faced with real conflict with a friend (effect size = .35). Moreover, improvements in child social skills and conduct problems at home were noted by both mothers and fathers, suggesting that the skills learned in the clinic generalized to the home and were maintained over time. These findings are important in light of earlier reviews of the social skills training literature that suggested that there is little empirical support for the efficacy of such training in terms of durable gains across situations and over time (Gresham, 1998). We postulate that the efforts in the CT program

to link the specific social skills deficits of each child to a particular intervention strategy and to share these strategies with parents and teachers paid important dividends. The significant findings with the CT and TT interventions are also important because it is undeniable that some parents will not be able to participate in parent training, for any number of reasons, and in such cases the CT and TT interventions are the only possible avenue for working with the child.

Finally we hypothesize that an even more effective model of treatment would be to offer the CT groups in the schools (in conjunction with TT training) rather than pulling out children to meet in a mental health center. In this way, we could take advantage of naturally occurring incidents by having teachers primed to reinforce specific behaviors. Nonetheless, it appears that the best approach is to use CT not as a stand-alone treatment for children with conduct problems but rather as an integral part of an intervention that involves parents and teachers. Although this article focuses on treating small groups of children with diagnosed behavior problems, we are also evaluating a classroom version of the Dina Dinosaur Social, Emotional and Problem Solving Child Training Program to be used by teachers. The classroom version is delivered to all children in the classroom, several times per week, throughout the school year. In this way, young children are provided with the language and skills to cope effectively with the emotions and problems that arise in their everyday lives. Preliminary results and experience with the program in more than 40 Head Start, kindergarten, and first-grade classrooms suggests the program is highly regarded by teachers, parents, and children.

Several recent reports, such as the Surgeon General's report on children's mental health (Office of the Surgeon General, 2000) and *From Neurons to Neighborhoods: The Science of Early Childhood Development* (Shonkoff & Phillips, 2000), have highlighted the need for the adoption of evidence-based practices that support young children's social and emotional competence and prevent or decrease the occurrences of challenging behavior in

early childhood. Research in effective dissemination of empirically supported programs, such as the Dinosaur program, is now needed to understand how to best bring these effective programs into mental health and school settings where children, their families, and teachers will benefit from them.

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Authors' Notes

Note

Please see the book *How to Promote Children's Social and Emotional Competence* by Webster-Stratton (Sage Publications) for more details.

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