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Initial Impact of the Fast Track Prevention Trial for Conduct Problems: I. The High-Risk Sample

Conduct Problems Prevention Research Group

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Abstract

Fast Track is a multisite, multicomponent preventive intervention for young children at high risk for long-term antisocial behavior. Based on a comprehensive developmental model intervention included a universal-level classroom program plus social skills training, academic tutoring, parent training, and home visiting to improve competencies and reduce problems in a high-risk group of children selected in kindergarten. At the end of Grade 1, there were moderate positive effects on children's social, emotional, and academic skills; peer interactions and social status; and conduct problems and special-education use. Parents reported less-physical discipline and greater parenting satisfaction/ease of parenting and engaged in more appropriate/consistent discipline, warmth/positive involvement, and involvement with the school. Evidence of differential intervention effects across child gender, race, site, and cohort was minimal.

The problem of juvenile crime has risen more than four-fold since the early 1970s (Cook & Laub, 1997). Homicide is now the leading cause of death among urban male teenagers (Centers for Disease Control, 1991). The seriousness of this problem has led to increased interest in finding effective programs for preventing antisocial behavior among adolescents. This article describes the initial results of a comprehensive multisite program (Fast Track) for preventing serious and persistent antisocial behavior among high-risk children.

The Fast Track project design is based on a model of the development of antisocial behavior derived from developmental theory and longitudinal research (Conduct Problems Prevention Research Group [CPPRG], 1992). The model focuses on individuals who begin showing conduct problems in early childhood (Moffitt, 1993; Patterson, Reid, & Dishion, 1992). These children, termed *life-course-persistent offenders* by Moffitt and early starters by Patterson et al., represent approximately 6% of the general population but account for almost half of all adolescent crimes (Wolfgang, Figlio, & Sellin, 1972). Early starting patterns of conduct problems are remarkably stable (Farrington, Loeber, & Van Kammen, 1990). For example, Richman, Stevenson, and Graham (1982) found that 62% of 3-year-olds with problems of impulsivity and oppositional behavior continued these problems through age 8. Almost half of all youth who initiated serious violent acts before age 11 continued this kind of offending

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beyond age 20, twice the rate of those who began their violent careers at age 11 or 12 (Elliott, 1994).

The Fast Track program involves a developmentally based, long-term multicomponent, and multisite intervention, evaluated using a randomized design with a no-intervention control group and a comprehensive multimethod set of assessment strategies (Cicchetti, 1984; Kazdin, 1987). A model of the developmental pathways associated with early starting conduct problems provided the framework for the prevention design that is described later. An empirically validated model aids in identifying a high-risk population—in this case, children who display conduct problems at home and at school around the age of school entry—and also provides a developmental framework to guide intervention activities. That is, the developmental model identifies risk factors to target in prevention and suggests the kinds of competencies that must be enhanced to move high-risk children into more adaptive developmental trajectories.

Developmentally, antisocial behavior is multiply determined. Child factors, particularly neuropsychological deficits that undermine executive functioning and contribute to high rates of child inattention and impulsivity, increase a child's risk for the development of conduct problems (Moffitt, 1993). Parenting also plays a critical role in the developmental process. Patterson and colleagues (e.g., Patterson et al., 1992) have demonstrated that early discipline failures are a primary causal factor in the development of conduct problems. Types of parenting practices that have been closely associated with the development of child conduct problems include inconsistent and harsh discipline, low supervision and involvement, and inflexible rigid discipline (Chamberlain, Reid, Ray, Capaldi, & Fisher, 1997). Child risk is increased by factors such as maternal substance abuse, nutritional deprivation, physical abuse, and lack of stimulation, which contribute to deficits in child executive functioning, language, and other cognitive skills (Moffitt & Lynam, 1994). Escalating and aversive parent-child interactions, sometimes accompanied by physical abuse, model and reinforce child aggressive behaviors while failing to support more socially appropriate ways of resolving conflict (Dodge, Bates, & Pettit, 1990; Snyder & Patterson, 1995). Contextual factors, such as family poverty, family instability, and other social factors disadvantageous to child development, such as number of siblings, criminal victimization of the family, and high residential mobility, add cumulatively to risk and interact with other factors to promote antisocial development (Eckenrode, Rowe, Laird, & Braithwaite, 1995; McLoyd, 1990; Rutter & Giller, 1983).

In addition to child factors and parenting practices, negative school experiences, particularly problematic peer relations and academic difficulties, make key contributions to the escalation of child risk for the development of antisocial behavior. Impulsive children raised by unskilled and overstressed parents often come to school with immature emotional control and intellectual development (Shaw, Owens, Vondra, Keenan, & Winslow, 1997) and with deficits in social and social-cognitive skills that contribute to aggressive social behavior and peer rejection (Coie, Dodge, & Kupersmidt, 1990; Dodge, Pettit, Bates, & Valente, 1995). In the early grade school years, aggressive-rejected children often show hostile attributional biases (Dodge, Murphy, & Buchsbaum, 1984), poor emotion regulation (Underwood, 1997), unskilled social problem solving (Lochman, Lampron, & Rabiner, 1989), and a tendency to overestimate the positive consequences of aggression (Perry, Perry, & Rasmussen, 1986). Peer rejection and academic difficulties at school entry can, in turn, increase conduct problems (Coie & Dodge, 1998). The prognosis for children who enter school with a combination of low social competence, aggressiveness, and poor emotional and cognitive preparation is poor.

The schools attended by high-risk children often have a high density of similarly high-risk children (Rutter, Maughan, Mortimore, Ouston, & Smith, 1979), thus compounding the learning and social problems of these children by creating classrooms that are noisy and disruptive and stressing the performance of teachers. Rather than reversing the potential for

aversive behavior, these classroom settings may reinforce it, given that peer rejection and a lack of academic readiness predict poor academic progress (Ladd, 1990).

In addition to rejection from peers and negative treatment by teachers, high-risk children are often rejected and poorly monitored by their parents during the school years (Patterson & Bank, 1989). This rejection by their primary sources of social support leads many high-risk adolescents to be alienated from the values of the major socializing institutions (Hawkins & Weis, 1985) and to gravitate to deviant peer associations (Cairns & Cairns, 1994). These associations promote more serious and diverse forms of antisocial activity and substance abuse (Elliott, Huizinga, & Ageton, 1985; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Van Kammen, 1995).

Developmental research describing the trajectory associated with early starting patterns of conduct problems provides a number of instructive points for prevention. First, it suggests that high-risk children can be identified at school entry by the diversity of their conduct problems across the settings of home and school. Campbell and Ewing (1990) reported that 67% of 6-year-olds with significant behavior problems met the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1980) criteria for an externalizing disorder at age 9. Loeber et al. (1993) also demonstrated that children who became violent as adolescents could be identified with almost 50% reliability as early as age 7 as a result of their aggressive and disruptive behavior at home and at school. Conversely, Robins (1966, 1978) noted that it was rare to find an antisocial adult who did not exhibit conduct problems as a child, even though no more than half of the children identified as having conduct problems go on to become antisocial adults. Although there will be false positives, the probability of identifying the majority of those children who are at serious long-term risk at school entry is high.

A second implication of the developmental model is that conduct problems are multiply determined. Consequently, preventive interventions must be comprehensive and target multiple risk and protective factors. Indeed, one of the more promising prevention programs to date, the Montreal Longitudinal–Experimental Study (Tremblay, Pagani-Kurtz, Mâsse, Vitaro, & Pihl, 1995), demonstrated the benefits of combining parent training with child social skills training on rates of delinquency and school adjustment problems at age 12. A third implication is that the risk process unfolds across developmental periods. Risk is cumulative, and high-risk youth are channeled in the direction of additional risk factors over time, which successively increase the probability of their becoming more seriously antisocial (Caspi & Bern, 1990). Children whose skill deficits persist across the early school years will face academic failure, as well as increasingly provocative peer situations, and gravitate toward friends that influence them toward involvement in more serious antisocial activities, particularly when they live in high-crime neighborhoods. Thus, interventions with high-risk children may need to continue across the transition from childhood to adolescence, providing more intensive intervention around the period when peer influence becomes strongest.

For all of the preceding reasons, the Fast Track program was designed to identify high-risk children prior to Grade 1 and address the major deficits that lead to subsequent school failure, rejection by peers and increased aggression toward them, and disruptive and defiant behavior toward authorities. Kindergarten provides the first occasion for the universal screening of children who are disruptive at home and at school, the criterion that Loeber et al. (1993) suggested as the basis for a reasonably accurate identification of early starting conduct problems. The intervention components were selected to address major risk factors in the child, the family, and the classroom. The child components were devised to increase the child's emotion regulation and social–cognitive skills because these affect a child's capacity for making and sustaining positive friendships and for becoming a nondisruptive and

nonaggressive member of a classroom (Bierman, Miller, & Stabb, 1987; Ladd, 1981; Lochman, Burch, Curry, & Lampron, 1984; Oden & Asher, 1977). The child program also included academic skills training because reading deficits and school failure are important risk factors for antisocial behavior (Maughan, Gray, & Rutter, 1985). The parenting component addressed the problem of harsh punishment practices, inappropriate and inconsistent discipline, and the failure to provide warmth and parental support for the child's constructive activities and nonaversive solutions to conflict and frustration. The parenting component also promoted parents' active involvement in the child's education through activities in the home and participation in school events. These are all factors that have been implicated in the development of antisocial behavior (Chamberlain et al., 1997; McMahon & Wells, 1998).

The problem of attending disruptive and chaotic school classrooms was addressed by a classroom-administered curriculum designed to improve the emotion-regulation and prosocial skills of all the children in the classrooms attended by the Fast Track target youth. The content of each of these components was coordinated in the year-long schedule so that parents and children were exposed to related material at the same time and the high-risk children were learning about skill domains just before they were discussed in their classrooms. The content of each intervention component changed each year to keep pace with the changing developmental needs of the children. All this was done because the developmental model suggests that risk factors have reciprocal influence across the systems, making it difficult to achieve progress in one domain without attempting change in the other domains. For this reason, rather than attempting a factorial design that tested component effects, Fast Track was designed with multiple intervention components for high-risk children their families, and their schools, each operating in synchrony with other components by means of coordinated staffing and program content.

Because the developmental model describes a process by which risk is cumulative, Fast Track was designed to extend across the school years from Grade 1 through Grade 10. Except for the parent and child groups that met with less frequency after Grade 1, and the ongoing school context component, programmatic support for competency development was based on specific criteria on which children and parents were evaluated several times a year. This article describes the impact of intervention at the end of Grade 1; therefore, the anticipated effects were expected to be greatest in the areas of emphasis in this year. These were improved emotion recognition and social problem solving, increases in word-attack skills, greater parental warmth and support for school and positive activities, less harsh punishment by parents, and improved friendships at school by the child. Smaller immediate reductions in disruptive behavior at home and school were expected at the end of 1 year because these would be mediated by the other improvements.

The Fast Track program builds on the success of the most important previous trial with high-risk youth, the Montreal Longitudinal-Experimental Study (Tremblay et al., 1995), by adding two components the academic tutoring component and the universal classroom component. Whereas the Montreal intervention lasted for 2 years, the Fast Track project continues through Grade 10, beyond the Grade 1 year reported on in this article. The Montreal study used a 30% cutoff point for determining risk status in contrast to the higher risk criterion of 10% used in the Fast Track design. The latter figure more closely approximates the base rate for the early starter group suggested by Wolfgang et al. (1972) and by Moffitt (1993).

Two major trials for preventing antisocial behavior and substance use have addressed similar risk factors to those of the Fast Track program but did so in universal designs rather than focusing on high-risk groups. The Seattle Social Development Project (Hawkins et al., 1992) incorporated three methods for altering the classroom learning and behavioral atmosphere across the first 4 years of school and made a parent-training component available to all parents. In the Baltimore study (Kellam & Rebok, 1992), classroom behavior management and mastery

learning procedures were used during Grades 1 and 2. However, neither of these trials were designed to assess program effectiveness with the children at highest risk for chronic and serious antisocial behavior.

Another important design feature of Fast Track is its implementation in four culturally and geographically diverse communities. This permits us to evaluate the program with a large, diverse sample of children and families and to examine program impact by gender, ethnicity, and child and family characteristics. Because of the sample diversity, the core program is implemented with prescribed adaptations for local community considerations and cultural diversity (CPPRG, 1992).

Although the long-range goal of this prevention project is to test its effectiveness in reducing adolescent delinquency, substance abuse, risky sexual practices, school failure, and psychological disorder, the immediate test of program effectiveness lies in evaluating success in changing key mediating factors for these long-term risk outcomes. The logic of the design is that building competency, reducing stressors, and moderating contextual factors that promote deviance are the keys to ultimate success for these children. The initial effectiveness of the Fast Track intervention in altering key child and family risk factors for antisocial development is described in this article. The effectiveness of the universal components of the intervention is described in a companion article (CPPRG, 1999a).

Method

Overview of Procedures

Schools within the four sites were selected as high risk on the basis of crime and poverty statistics of the neighborhoods they served. Within each site, the schools were divided into two sets matched for demographics (size, percentage who received free or reduced lunch, and ethnic composition) and the sets were randomly assigned to intervention and control conditions. Multistage screening of all kindergarten children from all of the schools proceeded first with teacher ratings of disruptive behavior, followed by parent ratings of behavior at home. Combined teacher–parent scores identified the high-risk children. We invited these families to participate in a longitudinal study of children's adjustment to school. Those who consented received parent and child interviews in the summer prior to Grade 1, which served as preintervention assessments. Families of children entering Grade 1 in intervention schools were invited to participate in weekly parent/child groups, plus home visits, tutoring, and school follow-up. Toward the end of Grade 1, classroom sociometric assessments were conducted, children were observed in school, and teacher ratings were obtained. Parents and children were reinterviewed in the following summer. Three successive cohorts were recruited at each site in this way. The intervention continued on a somewhat reduced basis each year thereafter with assessments repeated yearly.

Participants

Identification of the high-risk sample—Behaviorally disruptive kindergarten target children ($n = 891$) and their parents were identified by using a multistage screening procedure. First, schools were identified in four areas of the country: (a) Durham, North Carolina, a small city with a predominantly African American school population; (b) Nashville Tennessee, a moderate-sized city with African American and European American families; (c) Seattle, Washington, a moderate-sized city with an ethnically diverse population; and (d) central Pennsylvania a rural area with a predominantly European American population. In the spring, teachers rated the behavior problems of each of the kindergartners in the 54 participating elementary schools at these four sites using the 10-item Authority Acceptance Scale of the Teacher Observation of Classroom Adaptation—Revised (TOCA–R; Werthamer-Larsson,

Kellam, & Wheeler, 1991), which describes aggressive and oppositional behaviors (i.e., fighting, teasing, and disobedience). The TOCA-R has been found to have adequate test-retest reliability, and scores correlate with measures of aspects of children's classroom environments (Werthamer-Larsson et al., 1991). Kindergarten teacher ratings using the TOCA-R also predicted parent and teacher ratings of externalizing behavior problems at the end of Grade 1 (Lochman & CPPRG, 1995). The parents of children who scored to the top 40% of the sample at each site were then contacted by telephone or in person and rated the frequency of child behavior problems at home. The 24 items on this parent screen measure were drawn from the Aggression scales of the Child Behavior Checklist/4-18 (CBCL: Achenbach, 1991) and the Revised Problem Behavior Checklist (Quay & Peterson, 1987) and other items generated by the investigators (for further details, see Lochman & CPPRG, 1995).

Children's sum scores on the two screening measures (teacher and parent ratings of behavior problems) were averaged. Children who fell in the top 10% at each site on the combined screen ("high risk") were invited to participate in the longitudinal study. The mean age of the high-risk children was 6.5 years ($SD = 0.48$). Across all sites, the sample was 51% African American, 47% European American, and 2% of other ethnicity (e.g., Pacific Islander and Hispanic), reflecting the ethnic diversity of the population at the four sites. Sixty-nine percent were boys, and 31% were girls. Demographic characteristics of the sample at each site are shown in Table 1.

Assignment to intervention and control conditions—Because part of the intervention (described below) involved a school-based intervention, we assigned entire schools ($n = 54$) to either the intervention condition or the control condition. In the intervention condition, there were 445 children in 191 classrooms. In the control condition, there were 446 children in 210 classrooms.¹ The high-risk sample was identified and recruited for the study at the end of their kindergarten year, then assessed during the summer. Intervention staff revisited and recruited parents of children who entered intervention schools at the beginning of Grade 1 to participate in intervention. Intervention staff told these parents that an enrichment program to help their children succeed in school was available at their children's school. Parents were approached with the message that not all children entered school having the same advantages and that Fast Track was designed to help children be successful in school. In this way, parents were focused on the adaptive advantages of the program rather than stigmatizing the children by focusing on behavior problems. In addition, parents were "hired" as paid staff members. The rationale was that parents know their children better than anyone else and, by virtue of their role as parents, are in an optimal position to be primary agents of change. Parents received \$15 (i.e., \$7.50/hr) for each 2-hr enrichment session (parent group, parent-child sharing time, or tutoring) that they attended. Participation in these activities was viewed as a form of in-service training.

Regardless of the extent to which families agreed to engage in the intervention (e.g., full, partial, or nonparticipation), they were considered part of the intervention sample in all analyses reported here if their child was in a regular education placement in an intervention school through mid-November (or longer) of Grade 1. This procedure reduced the likelihood that any differences found in the later adjustment of children in the intervention and control groups would reflect sampling biases or greater help-seeking orientations among families in the intervention condition as compared with the control condition. Although some children later

¹The accompanying report (CPPRG, 1999a) incorporates a subset (845 of 891) of the high-risk children. High-risk children who were to a special-education classroom or who had moved to a different school were not included to the high-risk sample in that report, thus accounting for the different sample sizes. Similarly, the number of classrooms differs across the two studies because the present report includes those classrooms (regular and special education) in which high-risk children were present and the accompanying report includes only those classrooms in which the universal intervention was implemented (and controls).

moved to other schools or were later placed in special-education classrooms, they were not dropped as members of the intervention (or control) groups at any point after November of the child's Grade 1 year. Control families were recontacted at the end of Grade 1 for reassessment but were not contacted during the school year and did not receive any Fast Track prevention services.

Intervention Procedures

Fast Track uses a “unified model of prevention” consisting of both universal and selective components. Seven integrated intervention programs (the PATHS [Promoting Alternative THinking Strategies] curriculum, parent groups, child social skills training groups, parent-child sharing time, home visiting, child peer pairing, and academic tutoring) composed the intervention during Grade 1. These components took place in the school, during 2-hr extracurricular “enrichment programs” involving both parents and children, and in the home.

Universal intervention—For the universal (school-based) component of the intervention. Grade 1 classroom teachers were trained to deliver an adapted version of the PATHS curriculum (Kusche & Greenberg, 1994). Teachers implemented this classroom-level program throughout the year, teaching an average of two to three lessons per week (see Bierman, Greenberg, & CPPRG, 1996, for farther details). Fast Track Educational Coordinators (ECs) provided support and consultation for teachers and monitored the fidelity of implementation with weekly classroom visits and weekly teacher meetings. Lessons covered four domains of skills: (a) skills for emotional understanding and communication (i.e., recognizing and labeling emotions), (b) friendship skills (i.e., participation, cooperation, fair play, and negotiation), (c) self-control skills (i.e., behavioral inhibition and arousal modulation), and (d) social problem-solving skills (i.e., problem identification, response generation, response evaluation, and anticipatory planning). Teachers also received general behavioral consultation from the ECs.

Selective interventions—In addition to PATHS, which was conducted at the classroom level, parents and children in the high-risk intervention condition were offered parent groups, child social skills training groups, and academic tutoring during a weekly, 2-hr enrichment program held at the school building on Saturdays or weekday evenings. Sessions began in October of the Grade 1 year and continued for 22 sessions, ending in April. To facilitate attendance, we provided transportation and child care. Furthermore, as noted above, parents were paid \$15 for each enrichment program session that they attended.

During the 1st hr of this enrichment program, high-risk target children met in groups of 5 to 6 in “friendship groups” (social skills training groups) led by ECs and coleaders. Ninety-eight percent of children attended at least one friendship group; of those who attended, the average attendance was 78% (ranging from 74% to 83% across sites). Discussions, modeling stories and films, and role-plays were used to illustrate and promote skill concepts; cooperative activities provided opportunities for skill practice and performance feedback. Sessions focused on reviewing and practicing skills in emotional understanding and communication, friendship building, self-control, and social problem solving (see Bierman et al., 1996, for further details). During this same hour, parents met in a group led by Family Coordinators (FCs) and coleaders to discuss parenting strategies that would support child-school adjustment and improve child behavior. Ninety-six percent of parents attended at least one parent group; of those who attended, the average attendance was 71% (ranging from 64% to 79% across sites). Primary content areas of the parent-group curriculum included (a) establishing a positive family-school relationship and supporting child adjustment to school, (b) building parental self-control, (c) promoting developmentally appropriate expectations for the child's behavior, and (d) improving parenting skills to improve parent-child interaction and decrease disruptive behavior. Session topics and training techniques (instruction, modeling, discussion, and role-

playing) were drawn from the parenting program developed by Forehand and McMahon (1981), with additional material from programs developed by Webster-Stratton (1989) and by Hawkins, Catalano, and colleagues (e.g., Burgoyne, Hawkins, & Catalano, 1991; Hawkins et al., 1988). (See McMahon, Slough, & CPPRG, 1996, for further details about the parent-focused intervention components.)

After the parent and child groups, parent-child pairs spent 30 min together each session, participating in positive cooperative activities and practicing positive parenting skills with staff support (the parent-child sharing time). Activities included games and crafts, joint reading activities, and activities that allowed parents to develop positive parent-child relationships and to practice parenting skills presented in the parent group (see McMahon et al., 1996, for further details). During the last 30 min of each session, children worked with paraprofessional tutors on their reading skills (described below) while parents observed.

In addition to the enrichment group program, individual support was provided to children and parents to help them generalize the skills presented in the group setting and to address individual needs. FCs conducted home visits with parents every other week, on average, during Grade 1 and had weekly telephone contacts between group sessions. The home-visiting component provided an opportunity for Fast Track staff to (a) develop trusting relationships with the entire family system; (b) promote generalization of newly acquired parenting skills to the home; (c) promote parental support for the child's school adjustment, and (d) promote parental problem solving, coping, and goal setting as means of dealing with the many stressful life events (e.g., marital conflict, substance use, social isolation, and housing issues) that these families often experience. We used a problem-solving approach to such issues developed by Wasik, Bryant, and Lyons (1990) in home visiting with economically disadvantaged families. The ultimate goals of this problem-solving approach were to foster parental empowerment and self-efficacy (Dunst, Trivette, & Deal, 1989) and decrease dependency on Fast Track staff. ECs monitored child progress at school and supervised paraprofessional tutors, who conducted weekly "peer-pairing" sessions with children. In these latter sessions, high-risk children participated in 30-min play sessions with classroom peer partners (partners rotated over the course of the year). These sessions were designed to promote the generalization of friendship skills to the school setting and to offer high-risk children opportunities for friendship making with classroom peers. Academic tutoring, designed to promote reading skills, was also provided by the paraprofessional tutors. These tutors received 40 hr of training prior to intervention and regular supervision by ECs during intervention. The Wallach and Wallach (1976) tutoring program was used. Designed for low-readiness children from disadvantaged backgrounds, this program emphasized a phonics-based, mastery-oriented approach to the development of initial reading skills. Because the same paraprofessionals provided tutoring in reading skills and directed the peer-pairing sessions, high-risk children had contact with a supportive adult on a regular basis throughout the year. Tutors worked with children three times each week for 30-min sessions during school hours (two for reading, one for peer pairing) and also tutored the children during the extracurricular enrichment program.

Participation in the selective components was quite high. Over 99% of the families assigned to intervention consented to participate in the intervention and received at least one session. Seventy-two percent of the participants received more than 50% of each of the following selective intervention components: parent group, child social skills group, peer pairing, and tutoring. Even in cases in which families were slow to become involved in the other selective intervention components, home visiting was initiated when possible. Overall 81% of the participants received at least 50% of the recommended levels of home visits (i.e., at least six visits).

Intervention staff were hired from local communities to match (as much as possible) the ethnic composition of high-risk children at each site. ECs tended to be former teachers, whereas FCs either had advanced degrees in counseling or social work or had extensive experience in working with high-risk families. To enhance intervention consistency across sites, we required staff to attend a 3-day cross-site workshop and to observe videotapes of prototypic administration of each session. Intervention integrity was ensured by several procedures. First, all intervention components were manualized. Second, program developers conducted weekly cross-site supervisory telephone calls to inform intervention staff about the goals and activities of upcoming sessions and to receive feedback about children's and parents' responsivity to activities thus far. Third at weekly staff meetings at each site, intervention staff practiced and prepared for upcoming session activities. Fourth, intervention staff were observed as they delivered intervention throughout the year by the clinical supervisor and the coprincipal investigators, and the staff were given specific feedback about their adherence to the program and about their skills in delivering intervention in subsequent direct supervision sessions by supervisors.

Assessment Procedures

We hypothesized that the multicomponent, competency-based intervention would have a direct and strong impact on child social-cognitive and academic skills and on parent behaviors and social-cognitive processes. Changes in these mediating processes would in turn contribute to increases in socially competent behaviors and decreases in problematic behaviors. We used multiple assessment methods (ratings, interviews, peer nominations, and school and home observations) and informants (children, parents, teachers, peers, and interviewers). At least partial data were obtained from all 891 children and families at the post-Grade 1 assessment.

Home visit—Parent data were collected during home visits during the summers before and after the target child's Grade 1 year. While one research assistant interviewed the primary caregiver (usually the mother), a second assistant interviewed the target child in a separate room. Interviewers read the various rating forms to the primary caregiver or child and noted the responses. During that interview, in addition to other measures, parents reported on child behavior problems exhibited during the previous 24-hr period. Parents were recontacted by phone on two occasions during the next 2 weeks to make additional daily reports of child behavior problems.

During the summer home visit, each mother and child also participated in the Parent-Child Interaction Task (PCIT), a series of semistructured dyadic activities adapted in part from those presented by Forehand and McMahon (1981) and by Eyberg and Robinson (1983). The four tasks included free play (child's game, 5 min), a parent control situation (parent's game, 5 min), a Legos task (in which the child was told to construct a developmentally challenging Legos figure and the parent was instructed to give only verbal aid, 5 min), and clean-up (3 min).

Teacher reports—Teacher ratings describing the behavior problems and social competencies of all of the children in their classroom were collected in October and in the spring of Grade 1. Teachers completed the TOCA-R (Werthamer-Larsson et al., 1991) and the Social Health Profile (SHF; CPPRG, 1999c). In addition, teachers rated only the high-risk participants in the spring of kindergarten and Grade 1 using the Teacher's Report Form (TRF; Achenbach, 1991) and the Teacher Ratings of Child Behavior Change (CPPRG, 1999c; see below). Teachers received \$10 per child for completing these measures; caregivers received \$75 for their participation in the summer interview.

Peer ratings—Peer ratings were collected in the late spring of Grade 1. Children in all participating classrooms who received parental permission (75% to 80% in most classrooms)

were interviewed individually. Each nominated an unlimited number of classmates whom they “most liked” and “least liked” who fit various behavioral descriptions (see below).

School observation data—Behavioral observations were collected at school during the late spring of Grade 1. Observers, who were unaware of the treatment condition at the school, visited schools during March through May of Grade 1. Each target child was observed for four separate 30-min sessions, two during structured activities (i.e., academic instruction) and two during unstructured time (i.e., recess or lunch). Observers used a computer-based observation system (the Multi-Option Observation System for Experimental Studies [MOOSES] developed by Tapp, Wehby, & Ellis, 1993) to record the duration of peer and teacher interactions in real time and to record the frequency of discrete interactional events. Following each 30-min observation session, observers completed several rating scales to describe the quality of the child's behavior using the TOCA-R. These items were identical to those completed by teachers. Prior to data collection, observers were trained at each site for 6 weeks using videotapes and in situ practice sessions. Interobserver reliability was assessed for 12% of the sessions. For event data, mean percentage agreement across sessions was 88%, ranging from 60% to 100%. The mean kappa coefficient was .74. (For further details on the observation codes, rating scales, and procedure, see Wehby, Dodge, Valente, & CPPRG, 1993.)

Outcome Measures

Child social cognition and reading—Four measures assessed child social-cognitive skills. The Emotion Recognition Questionnaire (Ribordy, Camras, Stefani & Spaccarelli, 1988) assessed the child's skills in identifying the emotions likely to be elicited in a variety of everyday contexts and has been shown to have adequate construct validity (Ribordy et al., 1988). Children were verbally presented with 16 vignettes (e.g., “It is Susie's birthday, and she is given a party with lots of cake and fun games to play”) and asked to point to one of four pictures to indicate the feeling state of the character in each vignette (happy, sad, mad, or scared). The percentage of emotions identified correctly was computed for analyses ($\alpha = .66$). (Internal consistency on this measure and the following measures used Cronbach's alpha applied to pretest data.)

On the Interview of Emotional Experience (IEE; Greenberg & Kusche, 1990), children described the kinds of things that made them feel a certain way (i.e., happy, sad, angry, or worried), the kinds of things they do when they feel that way, and the kinds of things they do when they see others feeling that way. The IEE has been shown to have adequate validity in normative samples (CPPRG, 1999c). Responses to the various feeling states (their own and others) were coded as “prosocial/competent” or “aggressive/inept.” Responses were summed across emotional states to create a score representing the percentage of prosocial/competent responses given. Interrater agreement for these codes, assessed for 15% of the data, was satisfactory ($\kappa = .91$).

When interrater reliability on any of the interviewer measures was assessed in this study, the second coder was an independent research assistant. The first coder was the person who administered the measure and was unaware which measures would be selected for later interrater reliability assessment. Cases selected for interrater reliability were randomly drawn within site.

The Social Problem-Solving Measure (Dodge et al., 1990) was designed to assess the child's ability to generate appropriate solutions to common social problems. Children viewed a series of eight drawings and had vignettes depicting peer entry or peer conflict problems read to them. They were asked what the story character could do to solve the problem and prompted to provide up to three different solutions to each problem. Responses were coded as “prosocial/competent” or “aggressive/inept.” The percentage of prosocial/competent responses given by

children (summed across stories) was analyzed. The prosocial/competent score has adequate internal consistency (.70) across vignettes and significantly correlated with teacher ratings of problem behaviors (CPPRG, 1999c). Interrater agreement, assessed for 15% of the data, was satisfactory ($\kappa = .94$).

The Home Inventory With Child (HIWC; Dodge et al., 1990) assessed hostile attributional biases. Children viewed a series of eight drawings and had vignettes depicting either unsuccessful peer entry (e.g., being ignored or rebuffed) or minor harm under conditions of ambiguous intent (e.g., being bumped or pushed) read to them. For each incident, the children were asked why they thought the negative event occurred and what they would do about the other children who were involved. Child interpretations of ambiguous negative events on the HIWC were coded as “hostile,” “non-hostile,” or “don't know/other”; behavioral response intentions were coded as “aggressive” or “nonaggressive.” Analyses of this measure used (a) the percentage of hostile attributions made (e.g., interpretations suggesting that the protagonist behaved maliciously and intended to cause harm) and (b) the percentage of aggressive behavioral response intentions expressed (e.g., intentions to threaten or try to harm the other). The HIWC has adequate validity (Dodge et al., 1990) and reliability, with alphas of .80 for hostile attributions and .74 for aggressive behavioral responses (CPPRG, 1999c). Interrater agreement was satisfactory for both scores ($\kappa = .90$ and .89, respectively), based on examination of 15% of the data.

Individual achievement test scores and information collected from school records assessed child reading skills and school performance at the end of Grade 1. For the first cohort of children, the Woodcock–Johnson Psycho-Educational Battery—Revised (Woodcock & Johnson, 1990) was used for reading achievement testing. Five items on this subtest ($\alpha = .79$) assessed the child's ability to match a pictorial representation of a word with an actual picture of an object; the remaining items assessed the child's ability to identify letters and words. Initial analyses revealed that this test was too difficult for many of the children in our high-risk sample and failed to provide a sensitive assessment of the prereading and initial reading skills that were developing over late kindergarten and Grade 1. Hence, for the second and third cohorts, reading skills were assessed using the Diagnostic Reading Scales (DRS; Spache, 1981). The Spache scales were factor analyzed into two factors at this grade level. The factor used in this study assessed word-attack skills (sounding out and recognizing initial and final consonants) and has excellent internal consistency, with an alpha of .94 (CPPRG, 1999c). School records were examined to collect information on grades in language arts.

Child peer relations and social competence—Parents rated child social Competence using the Social Competence Scale—Parent Form (CPPRG, 1999c), a 12-item scale that includes 5 items describing prosocial behaviors (e.g., helpful, shares, and listens) and 7 items describing emotion regulation (e.g., copes well with failure, can calm down, and controls temper). Each item was rated on a 5-point scale, and a total sum score was computed ($\alpha = .87$). Teacher ratings of child social competence were collected using the SHP (CPPRG, 1999c), which included 9 items describing prosocial behaviors and emotion regulation (e.g., friendly, helpful, resolves peer problems, and controls temper in a disagreement). Items were rated on a 6-point scale and were summed to create a total score ($\alpha = .92$).

Peer nominations were collected for the behavioral item “Some kids are really good to have in your class because they cooperate, help others, and share. They let other kids have a turn.” Nominations were totaled and standardized within each classroom. In addition, children were asked to nominate (unlimited) classmates whom they “most liked” and “least liked.” Social preference scores were computed by standardizing the “most liked” and “least liked” nominations within classrooms and by calculating the difference between these standard scores (most liked – least liked). The difference scores were then restandardized for analyses (cf.

Coie, Dodge, & Coppotelli, 1982). The social preference score has been shown to have adequate validity in prior research (e.g., Coie et al., 1982) and is significantly positively correlated with prosocial behavior and inversely correlated with aggressive behavior (CPPRG, 1999c). As noted above, direct observations of positive social behavior were also collected at school. Observers recorded (in real time) the percentage of time children were engaged in positive peer interaction using the MOOSES ($\kappa = .74$).

Parenting behavior and social cognition—The following parent self-report measures were collected. The Parent Questionnaire, a 27-item adaptation of Strayhorn and Weidman's (1988) Parent Practices Scale, includes scales for appropriate discipline ($\alpha = .71$), warmth ($\alpha = .76$), and harsh discipline ($\alpha = .60$). This instrument assessed a variety of parenting practices targeted in the parent group. The Parent–Teacher Involvement Questionnaire—Parent (CPPRG, 1999c) is a 26-item measure that assessed the amount and type of contact that occurred between parent and teacher, the parent's interest and comfort in talking with the teacher, the parent's satisfaction with the child's school, and the parent's degree of academic stimulation with the child (e.g., reading to the child and taking the child to the library; $\alpha = .73$ for the encourage learning variable, which is a composite of items from this measure and the Parent Questionnaire; CPPRG, 1999c). A similar instrument was completed by the teacher (Parent–Teacher Involvement; Questionnaire—Teacher; CPPRG, 1999c). The alphas were .89 and .91 for the school involvement and education values variables, respectively.

The Developmental History (adapted from Dodge et al., 1990) was a verbally administered interview that covered a wide variety of family-related issues that focused on family experiences over the past 12 months. Of interest to this report were the vignettes and questions related to the parent's attitudes toward the child. In the vignettes section of the interview, the interviewer presented the parent with six brief written vignettes of various child misbehaviors (e.g., hitting another child and noncompliance) and asked the parent to describe what he or she would do in that situation. Responses were scored by the parent interviewer into one of several categories (e.g., reasoning, withdrawal of privileges, or physical punishment). Vignette responses from 11% of the normative sample were coded by a second research assistant. The Physical Punishment scale was used in data analyses. The kappa coefficient was .93. With respect to attitudes toward the child, the parent rated a series of questions (on 5-point rating scales) concerning the extent to which he or she got along with the child. In addition, the parent interviewer independently provided similar ratings concerning the parent's attitude toward the child after the interview. The parent interviewer's ratings were based on the parent's verbal and nonverbal behavior throughout this section of the interview, including the parent's responses to the attitudes-toward-the-child questions. Interrater agreement in interviewer ratings was assessed on 11% of the normative sample; the kappa coefficient was .84.

Using the Ratings of Parent Change (CPPRG, 1999c), an 11-item scale, parents described the extent of change in their own parenting practices and social cognitions over the past year ($\alpha = .86$ for parenting behavior and .63 for parenting satisfaction/difficulty). Items were rated on a 7-point scale, with response options ranging from -3 (*much worse*) to 3 (*much better*). It was administered at the end of the Grade 1 intervention to Cohorts 2 and 3. The Parent Satisfaction Questionnaire (CPPRG, 1999c) was administered only to parents in the intervention condition to Cohorts 2 and 3 after the Grade 1 intervention. It consists of 16 items (rated on a 4-point scale) that assessed parental satisfaction with various components of the Fast Track intervention and was administered over the telephone following completion of the summer interview by interviewers unknown to the families ($\alpha = .69$ to .81).

Observational assessment of parenting and child behavior in the PCIT used a simplified version of the Behavioral Coding System (BCS; Forehand & McMahon, 1981; McMahon & Estes, 1994). The child interviewer, who also functioned as the observer, recorded parent

commands, positive attention, and negative attention, as well as child compliance, noncompliance, and disruptiveness. Following completion of each task in the PCIT, the observer also completed an adaptation of the Interaction Rating Scales (IRS; Crnic & Greenberg, 1990), which contain 16 global 5-point items assessing the parent (9 items) and child (6 items) with respect to gratification, sensitivity, and involvement. At the conclusion of the PCIT, the observer also completed the Coder Impressions Inventory (CII; CPPRG, 1999c), a 65-item adaptation of several observer impressions inventories developed at the Oregon Social Learning Center (e.g., Capaldi & Patterson, 1989). The CII was based on the observer's overall impressions of the parent, the child, and their interactions over the entire PCIT. The CII and BCS were not used at the preintervention assessment for Cohort 1.

Observers were trained to criterion by lead observers at each site using manualized instruction, guided practice and role-play, and practice videotapes. Observers were required to attain a minimum level of 70% agreement with a criterion observer on both the BCS and the IRS on a prescored videotaped interaction and a live interaction with a pilot family before being allowed to collect data in the field. Once data collection commenced, weekly coding meetings were held to decrease observer drift. Annual training of lead observers and regular conference calls during data-collection periods were held to minimize cross-site observer drift. Interobserver agreement on the BCS and IRS was assessed on 15% of the PCIT sessions. Mean intraclass correlation coefficients for the parenting behaviors were .94 (range = .89 to .99) on the BCS and .74 (range = .72 to .76) on the IRS.

Child aggressive–disruptive behavior—Twelve measures of child aggressive–oppositional behaviors were collected. The Externalizing scale of the CBCL (Achenbach, 1991) assessed parent reports of child externalizing behavior problems. On this scale, parents used a 3-point scale to rate items describing the extent to which their child exhibited a series of oppositional, aggressive, and delinquent behaviors. Parents also completed the Parent Daily Report (PDR; Chamberlain & Reid; 1987) on three occasions, indicating whether or not 30 different behavior problems occurred during the previous 24-hr period. A preliminary factor analysis of the PDR identified 15 behaviors that factored onto two scales, reflecting 6 aggressive behaviors (e.g., fighting, hitting, and yelling; $\alpha = .83$) and 9 oppositional behaviors (e.g., whining, talking back, and noncompliance; $\alpha = .81$). Reports of these 15 behaviors were summed over the three administrations of the PDR to provide a total score for analyses. Finally, parent ratings of behavioral improvements across Grade 1 were also collected for children in Cohorts 2 and 3. A total score on the Parent Ratings of Child Behavior Change (CPPRG, 1999c) was used, reflecting the amount of change parents observed in child behavior problems (i.e., following rules and controlling aggression) over Grade 1. Items were rated on a 7-point scale, with response options ranging from -3 (*much worse*) to 3 (*much better*). It was administered at the end of the Grade 1 intervention to Cohorts 2 and 3. This score has adequate internal consistency ($\alpha = .82$; CPPRG, 1999c).

Teacher ratings on the Externalizing scale of the TRF (Achenbach, 1991) assessed acting-out behaviors in school. Teachers also completed the TOCA–R (Werthamer-Larsson et al., 1991), which includes a 10-item Authority Acceptance Scale ($\alpha = .94$), providing an additional index of aggressive–oppositional behavior at school. Like parents, teachers were also asked to rate the amount of change they observed in child behavior for children in Cohorts 2 and 3 during Grade 1. Eight items on the Teacher Ratings of Child Behavior Change (CPPRG, 1999c) reflected changes in the area of child behavioral control and school performance using a 7-point scale, from which a total score was computed ($\alpha = .94$).

Peer nominations of aggressive and disruptive behaviors were collected using two behavioral descriptions: “Some kids start fights, say mean things and hit other kids” (aggressive) and “Some kids get out of their seat a lot, do strange things, and make a lot of noise. They bother

people who are trying to work” (hyperactive–disruptive). Analyses examined the sum of the standardized scores that children received on these two items. These scores have been shown to be related to children's peer-rated social competence (CPPRG, 1999c).

Two scores collected during school observations assessed child aggressive–oppositional behavior. First the observed frequency with which a child initiated aggressive behaviors toward peers was recorded. In addition the TOCA–R Authority Acceptance Scale items, rated by observers after each of the four observation sessions, were summed to reflect the general quality (e.g., breadth and severity) of target child aggression observed at school (interobserver correlation = .80).

School records were examined to collect information on the use of special-education services because in Grade 1 referrals to special-education resource classrooms are often associated with behavior management issues, rather than reflecting learning difficulties alone.

Two scores of child behavior collected during home observations of parent–child interaction were derived from the CII and the BCS: warmth/affection/gratification and noncompliance/aggression. Mean intraclass correlations for the child behaviors were .93 (range = .89 to .99) on the BCS and .73 (range = .72 to .73) on the IRS.

Derivation of Constructs

To reduce redundancy across measures and to create stable scores of functioning within each domain, we attempted to combine multiple measures of the same construct from the same source before analyses were conducted. Measures were not combined across source because of previous research suggesting that different sources provide different information about functioning (e.g., Achenbach, McConaughy, & Howell, 1987; Coie & Dodge, 1988; Dishion, Li, Spracklen, Brown, & Haas, 1998). Measures were considered missing if 50% or more of the items on a measure were missing.

In creating cross-measure constructs, scales and items to be included in the analyses were selected on a conceptual basis. Only scales that were administered consistently to multiple cohorts both prior to and after the Grade 1 intervention were included in the cross-measure analyses. If response scales differed across measures, then they were converted to a common metric prior to the cross-measure analyses. Other scales were maintained as separate measures of the constructs of interest. Each construct was tested individually within reporter using confirmatory factor analyses (CFAs) with data from a normative sample of 387 children (chosen from the screened kindergarten sample in control schools to represent the entire range of behavioral risk) gathered prior to the intervention. In those instances in which the measures were not available prior to the intervention, we conducted CFAs with normative sample data at the end of Grade 1. If a scale did not load significantly in the CFAs, then it was retained as a separate measure of the construct of interest. The CFA results indicated several independent constructs for children's social cognition (emotion recognition, emotion coping, social problem solving, hostile attributions, and aggressive retaliations) and child behavior in the context of parent–child interactions (warmth/affection/gratification and noncompliance/aggression). The CFA results also indicated independent constructs assessing parenting behavior (harsh discipline, appropriate/consistent discipline, warmth/positive involvement, encouragement of learning, school involvement, and parenting changes), parenting social cognition (attitudes toward the child; education values; and parent changes, satisfaction/difficulty), and parental satisfaction with the intervention. The specific results of these CFAs are included in technical reports (CPPRG, 1999b).

Results

Analytic Strategy

Analyses of preintervention scores for the demographic and outcome variables revealed no systematic differences between the intervention and control groups, as the number of significant comparisons did not exceed chance levels. The unadjusted intervention- and control-group means (and cell sizes and standard deviations) for all dependent variables at both preintervention and post-Grade 1 are listed in Table 2.

The research design involved 891 individual children who were nested within 401 classrooms. To account for possible classroom dependency in the data, we fit a two-level model using SAS (Statistical Analysis System) PROC MIXED (SAS Institute, 1990). The model used is analogous to an analysis of covariance with gender, cohort, site, and intervention as between-subjects factors and the preintervention score (when available) as the covariate.² In the mixed model, the preintervention covariate and child gender were modeled as individual-level variables, whereas cohort, site, and intervention were modeled as classroom-level variables. Although only the interactions involving intervention are discussed, all two-way interactions among gender, cohort, site, and intervention were included in the model.

Effects were tested using Type 1 (hierarchical) sums of squares. The intervention main effect was tested controlling for all other main effects but not for interactions. We ran three variations of the model to test each two-way intervention interaction, controlling for all other two-way interactions. Significant interactions involving intervention were interpreted by contrasting adjusted means for the control and intervention groups at all levels of the other factor in the interaction. Interactions between race and intervention were analyzed using only the Nashville and Seattle site data because there was limited variation in race at the other two sites. For these analyses, race (dichotomously coded as European American vs. African American; others were excluded because of small cell size) was substituted for site and cohort was deleted. Only 5 of 80 tests of the interaction between race and intervention were significant. Because none of these effects moderated the intervention effects that are described below, they are not discussed further. Unless otherwise stated, all main effects of intervention were consistent across all levels of site, cohort, gender, and race. As an estimate of the size of the treatment effect, Cohen's *d* was computed from the *F* value and degrees of freedom ($2\sqrt{F}/\sqrt{df}$; Rosenthal, 1994).

Missing data were fewer than 10% for all variables, except for the TRF Externalizing *T* score (16%), the Parent–Teacher Involvement Questionnaire—Teacher variables for the school involvement and education values constructs (15%), and those variables analyzed with partial cohorts (see Table 2). A case was excluded from analysis if a score was missing.

As a check on whether attrition might bias the findings, we performed analyses of variance (Intervention vs. Control \times Retained vs. Attrited) to contrast the retained children with the attrited children on six critical variables that had been collected at kindergarten age (Socioeconomic status [SES], CBCL Externalizing score, TRF Externalizing score, single-parent family status, ethnicity, and gender). No significant main effects or interactions were found for any variable, indicating that attrition was not likely to bias the reported results.

Multivariate analyses were not conducted because tests of dependent variables were considered as relatively independent and sporadic missing data across variables would deflate and skew sample size. The full model that we tested is shown below.

Level 1 (individual)

²The covariate was deleted for analyses in which the preintervention score was not available.

$$Y_{ij}=b_{0j}+b_{1j}(\text{gender})+b_{2j}(\text{covariate})+r_{ij}$$

Level 2 (classroom)

$$\begin{aligned} b_{0j}= &g_{00}+g_{01}(\text{site})+g_{02}(\text{cohort})+g_{03}(\text{intervention}) \\ &+g_{04}(\text{Site} \times \text{Cohort})+g_{05}(\text{Site} \times \text{Intervention}) \\ &+g_{06}(\text{Cohort} \times \text{Intervention}) \\ &+g_{07}(\text{Site} \times \text{Cohort} \times \text{Intervention})+u_{0j} \end{aligned}$$

$$\begin{aligned} b_{1j}= &g_{10}+g_{11}(\text{site})+g_{12}(\text{cohort})+g_{13}(\text{intervention}) \\ &+g_{14}(\text{Site} \times \text{Cohort})+g_{15}(\text{Site} \times \text{Intervention}) \\ &+g_{16}(\text{Cohort} \times \text{Intervention}) \\ &+g_{17}(\text{Site} \times \text{Cohort} \times \text{Intervention})+u_{1j} \end{aligned}$$

$$b_{2j}=g_{20}+u_{2j}$$

The g_{03} term represents the intervention main effect, and the g_{05} , g_{06} , and g_{13} terms represent the Site \times Intervention, Cohort \times Intervention, and Gender \times Intervention interactions, respectively.

The results of analyses of intervention main effects are summarized in Table 3. Of the 40 dependent variables, 18 yielded a significant ($p < .05$) main effect of intervention, all in the hypothesized direction. The median effect size for significant effects was .33 (range = .23 to .70). If the variables had been independent of each other, this proportion of significant effects would be likely to occur by chance fewer than once in a 1,000 occasions. Even assuming moderate intercorrelation of variables, it was concluded that this pattern is unlikely to occur by chance, so no further alpha correction was made.

Child Social Cognition and Reading

Six of the eight variables in this group yielded a significant main effect of intervention. The intervention group improved its mean scores across time in emotion recognition, emotion coping, and social problem solving, and decreased its mean score in aggressive retaliation, to a significantly greater extent than did the control group. At the end of Grade 1, the intervention group displayed higher Spache Word Attack skill scores than did the control group. This last main effect was qualified by a significant interaction between intervention and site (see Table 4 for means and tests for all significant interaction effects). Cell contrasts indicated that the intervention-group means were higher than the control-group means at all four sites, but the intervention effect was significant only for the Durham site. Finally, the intervention group also had higher language arts grades than did the control group at the end of Grade 1.

Child Peer Relations and Social Competence

Two of the five measures of peer relations yielded a significant main effect of intervention. As directly observed at school during the spring of Grade 1, the intervention group spent more time in positive peer interaction than did the control group. The intervention group also received higher peer social preference scores than did the control group.

Parenting Behavior

Five of the 11 variables in this group yielded a significant main effect of intervention. Although both groups decreased in their reported use of physical punishment in response to hypothetical vignettes, the intervention group reported less use of physical punishment after Grade 1 than did the control group. During the PCIT, coders rated intervention-group parents as showing more warmth and positive involvement than the control-group parents, and inspection of cross-time changes indicated that the intervention-group mean score improved, whereas the control-group mean score worsened. During the same task, coders rated intervention-group parents as showing more appropriate and consistent discipline than the control-group parents, with cross-time changes indicating that the intervention-group mean score improved to a greater extent than did the control-group mean score.

Teachers rated the parent involvement in school as greater for the intervention group than the control group, with the intervention-group mean score increasing across time and the control-group mean score decreasing across time. Finally, intervention-group parents rated their own behavior change as more favorable than did the control-group parents.

Parent Social Cognition

One of four variables yielded a significant main effect of intervention. Intervention-group parents rated their change in parenting satisfaction and ease of parenting more positively than did control-group parents.

Child Aggressive–Disruptive Behavior

Four of the 12 variables in this group yielded a significant main effect of intervention. Behavior change ratings from both parents and teachers revealed more behavioral improvement among children in the intervention group than among children in the control group. Using the TOCA–R Authority Acceptance Scale, direct observers at school rated the intervention group as displaying fewer aggressive behavior problems than the control group. Finally, the average number of minutes of special-education services received per week by the intervention group was significantly lower than that received by the control group.

The main effect of intervention on observer-rated TOCA–R scores was qualified by interactions between intervention and site and intervention and cohort. Cell contrasts indicated that the favorable intervention effect held only at the Durham site and only for Cohorts 1 and 2. The main effect of intervention on special-education services was qualified by a significant interaction between intervention and gender. The intervention effect held only for boys. A significant interaction effect was also found between intervention and site for the TRF Externalizing score, with a favorable effect of intervention only for the Seattle site.

Using Achenbach's (1991) suggested clinical cutoff of $T = 60$ for the CBCL and the TRF Externalizing scores, we found that the percentages of children in the intervention and control groups who were in the “nonclinical” range at the end of Grade 1 were comparable. For the CBCL Externalizing scores, 36% of the intervention and control children were below the clinical cutoff. For the TRF Externalizing score, the corresponding figures were 33% (intervention children) and 34% (control children).

Parental Satisfaction With the Intervention

Data concerning intervention-group parents' satisfaction with the Fast Track intervention as assessed by the parent-completed Parent Satisfaction Questionnaire during the summer after Grade 1 are presented in Table 5. Parents reported high levels of satisfaction with the overall helpfulness of Fast Track, with the family-based components, with the child-focused friendship group, with tutoring, and with the PATHS curriculum.

Analyses of the relationship between race and parent satisfaction indicated that African American parents in both Seattle ($M = 3.7$, $SD = 0.33$) and Nashville ($M = 3.8$, $SD = 0.26$) reported significantly higher levels of satisfaction with the parent group/parent-child sharing time than did European American parents (for Seattle, $M = 3.4$, $SD = 0.42$; for Nashville, $M = 3.6$, $SD = 0.41$; both $ps < .02$). African American parents in Nashville ($M = 3.9$, $SD = 0.37$) also reported significantly higher levels of satisfaction than did European American parents ($M = 3.4$, $SD = 0.79$) with the helpfulness of Fast Track with other children in the family ($p < .01$). Both groups were quite satisfied with intervention, however.

Discussion

The purpose of this report was to examine the effects of the initial year of the Fast Track intervention on the high-risk sample of children and their parents. The results of intervention at the end of the 1st year of this multisite preventive trial provided evidence of significant effects that are consistent with the prevention model. The intervention-group children, relative to the children in the control condition, progressed significantly in their acquisition of almost all of the skills deemed to be critical protective factors by the developmental model. They improved in both emotional and social coping skills, and they made distinct progress with basic word-attack skills for reading. These improvements in skills were accompanied by more positive peer relations at school, as well as better language arts grades. Parents in the intervention condition, relative to the control condition, demonstrated more warmth and positive involvement, more appropriate and consistent discipline, more positive school involvement, and less harsh discipline. Intervention-group parents also reported greater positive changes in their parenting behavior and parenting satisfaction and self-efficacy. Finally, some of the indexes of child behavior problems indicated initial effects on the reduction of disruptive and aggressive behavior problems among what was a highly disruptive and aggressive group of children in the intervention condition.

Unlike some clinical trials in which failure to consent to participate in the intervention can result in imbalanced attrition rates between intervention and control samples, consent was obtained initially from all families for participation in a longitudinal study of children's social progress. Attrition was therefore comparable for the control and intervention conditions. Families could participate in the intervention at whatever level they chose but still were retained in all analyses of the effects of intervention by virtue of their continued participation in the longitudinal study. Staff maintained some contact with initial nonparticipants in the hope that through these relationships the families might ultimately agree to participate, and almost everyone did, but not always during the 1st year.

Although most effect sizes were moderate, the intervention-group children did seem to acquire the skills that were emphasized in the children's groups and the PATHS curriculum given in their classrooms. They were more successful than control-group children in recognizing the emotions that typically are evoked by varying circumstances and could verbalize more appropriate responses for handling their emotions in these situations. This improved effectiveness in coping with social difficulties was reflected in the greater efficacy of the problem-solving solutions offered by children in the intervention as compared with children in the control condition. The two groups did not differ in the proportion of hostile attributions they made in the context of hypothetical ambiguous provocations, but the intervention-group children were less likely than the control-group children to offer aggressive responses to the situations. Much of the curriculum focus in Grade 1 was on increasing prosocial skills, so that these high-risk children would have alternatives to aggressive responses in frustrating social situations and so that they could think of nonaversive ways to achieve their goals. The Grade 1 program did not deal explicitly with the interpretation of other people's motives or other issues related to hostile attribution processes because these were regarded as more advanced

developmental themes. Thus, the program appears to have had the kind of impact hoped for in the design and matches results found in earlier studies using similar curricula with samples that may have been less at risk for long-term antisocial outcomes than our sample (e.g., Lochman et al., 1984).

Nonbiased observers recorded actual school performance that was consistent with these gains in social knowledge. Intervention-group children engaged their peers in prosocial activities more than did the control-group children. They also were more accepted by classmates, as indicated by their higher social preference scores. Some of the effects of the intervention on peer relations are likely due to the peer-pairing procedure (i.e., having target children paired in weekly play sessions with nonrisk classmates in order to practice newly learned social skills and establish friendships; Bierman, 1986). The overall mean level of social preference scores for both intervention and control groups was still substantially below their class means, however, suggesting that as a group they were still having some social problems with peers.

Some of the improvement in peer relations may be attributable to the effects of reading tutoring (Coie & Krehbiel, 1984) because increase in academic success may foster feelings of efficacy (and reduced child frustration) in the school setting and indirectly result in improved classroom behavior. The DRS (Spache, 1981) was substituted for the Woodcock-Johnson Psycho-Educational Battery—Revised because it is a more intensive measure of reading performance, reflecting skills as basic as the ability to sound out initial and ending sounds, and it provided a broader sample of test items at the level at which children were performing. The results obtained with the DRS were quite impressive, particularly for the Durham site, which had the most educationally disadvantaged sample. The overall pattern of reading progress was consistent with the results for language arts grades, which indicated a marked effect of tutoring on academic performance.

After the 1st year of intervention, parents in the intervention group demonstrated less harsh punishment, more appropriate and warm parenting behaviors, and more parental involvement in school than did parents in the control group. First, the intervention-group parents reported that they would use less physical punishment in response to child misbehavior in child-rearing vignettes than did control-group parents. However, the intervention-group parents did not differ from the control-group parents on either self-report or observational measures of harsh, coercive discipline. It may be that changes in coercive verbal behaviors, which were the focus of these latter measures, are initially more resistant to change than is the use of physical punishment.

Second, as some of their negative parenting decreased, intervention-group parents were found to increase their warm and positive parenting behaviors and to use more appropriate and consistent discipline strategies during semistructured home observations. Parents in the intervention group also reported significantly greater improvements in general parenting behavior (e.g., parent's ability to increase child's positive behaviors and decrease negative behaviors) and in the use of discipline antecedents (e.g., ability to clearly state parental expectations to the child) and consequences (e.g., parent's ability to follow through on directions to the child) than did parents in the control group. Along with these improvements in parenting behaviors, intervention-group parents also reported greater parenting satisfaction and ease of parenting over the course of the year.

Finally, teacher reports indicated that intervention-group parents had greater levels of positive parental involvement in their children's schools than did control-group parents. This finding is consistent with the emphasis in the parent group on establishing a positive family-school relationship. Teachers participated in several parent-group sessions, and parents visited their children's classrooms to get a better sense of the daily routines of Grade 1.

The intervention-group parents did not differ from the control-group parents in their attitudes toward their children, nor did their educational values change differentially as a function of intervention. This suggests that changes in child aggressive and academic behavior may have not yet been of sufficient magnitude, or been in place long enough, to change parental perceptions of their children. Such parental “attitudinal lags” have been noted by other investigators (e.g., McMahon & Forehand, 1984).

Parents reported high levels of satisfaction with the Fast Track intervention. Not only did they report being satisfied with the help provided to them and to the target children through the various intervention components, they also reported that Fast Track had been helpful to other children in the family. Although no independent assessments of the functioning of nontarget siblings were obtained at this time point, these parent-report data are consistent with findings reported by others who have used family-based interventions (e.g., Humphreys, Forehand, McMahon, & Roberts, 1978) of sibling generalization. It may be that the home-visiting component is especially facilitative of such effects, given that one of its primary goals is to assist parents in generalizing their newly acquired parenting skills from the parent group and parent-child sharing time to the home.

It is not clear from the mixed pattern of results with the various measures of child antisocial behavior whether the progress in building child and parent skills has, as yet, translated into consistent reductions in the behavior problems of the high-risk children. Although the parent and teacher rating data did not indicate differential problem reductions (either on an absolute level or in the proportion of children in the “nonclinical” range at the end of Grade 1), neutral observers did find significant improvements in disruptive behavior in the school (but not the home). Paradoxically, both parents and teachers credit the intervention-group children with having made positive changes in disruptive behavior across the school year. One possible explanation for these seemingly contradictory findings is that the intervention-group children actually did make small but significant progress in this area but continued to exhibit sufficiently disruptive behavior that parents and teachers did not change their categorical judgments of them.

One of the problems with using the CBCL and the TRF as measures of change with parents and teachers is that they call for categorical judgments (“never occurs,” “occurs somewhat,” and “occurs very often”) of the frequency of different types of dysfunctional behavior. Thus, they may fail to capture the initial increments of improvement in disruptive behavior. Closely related to this possible explanation is the fact that these children were selected as the most disruptive children in their classrooms. It would be surprising if both teachers and classmates did not quickly identify them as the “bad kids” on the basis of their initial behavior during the fall term. For these children to lose their status as aggressive-disruptive would require major reductions in these behaviors, sufficient to place them within the distribution of the rest of the class. This clearly did not happen by anyone's accounting, and so the high-risk children likely maintained their negative status with both teachers and peers. The fact that Fast Track staff consulted with the teachers about the adjustment of the intervention-group children also may have contributed to differential stereotyping across groups, as children in the control group were never identified to the teachers as high risk by Fast Track staff. A different dynamic may have operated with the parents and their ratings. Parents were not seeking treatment for their children's problem behavior, nor were the children identified as being at high risk to the parents. However, with a heavy group-training emphasis placed on monitoring their children more carefully, parents may have been more sensitized to both good and bad behavior, leaving categorical judgments of disruptive behavior intact.

On the other hand, ratings by observers, unaware of the treatment condition of the children, suggested that the intervention-group children had made significant incremental improvements

in disruptive behavior at school, a fact mirrored in ratings of change by parents and teachers. This point is further corroborated by the fact that the intervention-group boys spent less time in special-education resource classrooms than did the control-group boys, something usually associated with behavior-management issues at this age. Thus, it seems likely that the intervention-group children made at least modest improvements in their disruptive behavior across Grade 1 as a result of the intervention but did not make sufficient improvements to change the way they were viewed categorically by adult caretakers. These results are consistent with the developmental model on which the intervention is based. The model implies that conduct problems are overdetermined by multiple risk factors for high-risk young children living in high-risk circumstances. It should be remembered that our selection process led us to work with the 10% of children showing the worst cross-situational behavior problems in neighborhoods with substantial economic deprivation, crime, and delinquency. When intervention takes place, even as early as Grade 1, it works against the momentum of substantial deficits in the child's coping repertoire, as well as family and school factors that may impede the impact of the intervention.

There was little evidence of differential intervention effects for boys versus girls. The only Gender \times Intervention interaction effect that emerged involved special education (which reflected intervention effects for boys but not for girls). These findings replicate and extend those of Webster-Stratton (1996), who reported minimal Gender \times Intervention effects with clinic-referred, predominantly European American and two-parent families as a function of a parent-training intervention. In this case, child gender did not moderate the Fast Track intervention's effectiveness with low SES, multiproblem, European American and African American parents, the majority of who were single parents. Of importance also is the fact that there was little indication that the intervention was differentially effective across sites or cohorts.

Analyses for the Seattle and Nashville sites indicated that the intervention effects did not differ as a function of race. The Fast Track intervention was comparably effective for both African American and European American children and families. In a few instances, African American parents in the intervention reported greater levels of satisfaction with some aspects of Fast Track.

In conclusion, this study documents support for the early effectiveness of the Fast Track intervention in terms of the children's social cognition, academics, peer relations, and aggressive-disruptive behaviors, as well as parenting behavior and parents' social cognitions. Furthermore, at least in the early phases of this long-term intervention, the intervention seems equally effective in each of these domains for both boys and girls, with African American and European American children and parents, across urban and rural sites, and across three cohorts.

The magnitude of effects after 1 year of intervention was generally modest but must be interpreted in light of the nature of the "intent-to-intervene" (Brown, 1993) approach used in this study. All public school children in the designated high-risk communities were screened for adjustment risk in kindergarten. Parents were recruited into a developmental study and became candidates for intervention when their child began Grade 1 at an intervention school. Once designated as intervention candidates, families became participants in the intervention group. Low-participating children and parents were not dropped from the intervention group. Instead, the research design has been to track carefully variations in intervention participation to allow for future investigations exploring variability in responsivity within the intervention group. Building on previous studies (e.g., Tremblay et al., 1995) that demonstrated the effects of many of the individual components, this study had an extended goal—to evaluate the efficacy of a comprehensive prevention program (that included an integration of these components) at the population level in targeted high-risk communities. These 1st-year results

demonstrate the potential for adapting intervention components originally developed in clinic settings with focused samples and making them suitable for preventive efforts targeting high-risk populations in naturally occurring high-risk communities across a wide cross-section of American contexts.

Effects of similar magnitude that accumulate over the course of the intervention should enhance the likelihood of reaching the long-term goal of preventing serious and chronic adjustment problems in these children. These findings (and those reported in the companion article describing classroom effects: CPPRG, 1999a) are consistent with the developmental model on which our intervention is based. The model suggests that changes in child, family, and school-based risk factors are necessary in order to significantly reduce and prevent child antisocial behavior. One focus of future research will be to assess the extent to which changes in these risk factors may account for changes in child antisocial behavior and may contribute over time to more adaptive child developmental trajectories.

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Table 1

Demographic Information on High-Risk Children

Variable	Intervention site					Total
	Durham	Nashville	Rural PA	Seattle		
Male						
<i>n</i>	167	158	149	141		615
%	76	69	66	65		69
European American						
<i>n</i>	16	82	219	99		416
%	7	36	97	46		47
African American						
<i>n</i>	202	148	6	96		452
%	92	64	3	44		51
Single-parent family						
<i>n</i>	165	157	76	119		518
%	76	68	34	55		58
Parent high school dropout						
<i>n</i>	69	99	42	43		254
%	32	43	19	20		29
Lowest SES class*						
<i>n</i>	57	94	61	46		258
%	32	51	31	26		35

Note. PA = Pennsylvania; SES = socioeconomic status.

* Based on Hollingshead score.

Table 2
Pre- and Postintervention Means and Standard Deviations for Control and Intervention Participants

Variable	Control group						Intervention group						
	Kindergarten			Grade 1			Kindergarten			Grade 1			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
Child social cognition and reading													
Emotion recognition	411	10.61	2.85	12.14	2.46	416	10.73	2.79	12.91	2.17			
Emotion coping	426	0.94	0.67	1.06	0.65	429	0.90	0.62	1.14	0.65			
Social problem solving	420	0.63	0.22	0.67	0.18	424	0.61	0.22	0.70	0.17			
Hostile attributions	421	0.67	0.26	0.67	0.25	426	0.67	0.25	0.66	0.24			
Aggressive retaliation	421	0.42	0.32	0.35	0.27	426	0.43	0.31	0.31	0.26			
Reading achievement	421												
Woodcock Letter-Word ID	145 ^a	12.06	3.44	22.11	6.47	151 ^a	12.81	4.91	23.34	6.35			
Spache Word Attack	276 ^a			-0.15	0.99	275 ^a			0.15	0.73			
Language arts grades (A = 13, F = 1)	418			5.84	4.07	419			6.52	3.96			
Child peer relations and social competence													
Time in positive peer interaction	418			0.46	0.19	425			0.50	0.21			
Peer social preference	389			-0.63	0.96	420			-0.47	0.97			
Peer-nominated prosocial	389			-0.43	0.66	420			-0.35	0.68			
Teacher-rated social competence	241*			42.25	23.17	246 ^a			40.30	18.45			
Parent-rated social competence	425	2.45	0.72	2.44	0.72	405	2.45	0.71	2.41	0.68			
Parenting behavior													
Harsh discipline													
PQ	424	1.04	0.57	0.97	0.53	428	0.97	0.52	0.94	0.48			
Vignettes: Physical punishment	425	0.21	0.20	0.17	0.17	429	0.18	0.18	0.14	0.16			
CII/BCS	275 ^a	0.06	0.73	0.02	0.72	276 ^a	-0.04	0.58	-0.06	0.59			
Warmth/positive involvement													
PQ	424	2.42	0.51	2.41	0.49	428	2.51	0.49	2.48	0.50			
CII/BCS/IRS	276 ^a	0.01	0.59	-0.06	0.58	276 ^a	0.07	0.57	0.09	0.58			
Appropriate/consistent discipline													

Variable	Control group						Intervention group						
	Kindergarten			Grade 1			Kindergarten			Grade 1			
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
PQ	424	2.52	0.62	2.61	0.60	428	2.55	0.62	2.60	0.59			
CII	275 ^a	2.25	0.39	2.26	0.39	276 ^a	2.25	0.38	2.34	0.39			
BCS	276 ^a	0.03	1.68	-0.12	1.71	274 ^a	-0.08	1.64	-0.02	1.58			
Learning and school involvement													
Encourage learning (PQ/PTI-Parent)	425	1.97	0.73	1.99	0.78	427	2.04	0.75	2.05	0.76			
PTI-Teacher	383	1.29	0.68	1.24	0.73	378	1.22	0.69	1.34	0.64			
Parent ratings of behavior change	278 ^a			1.65	0.77	278 ^a			1.96	0.66			
Parent social cognition													
Attitudes toward the child													
PQ/Developmental History	425	3.73	0.57	3.77	0.53	429	3.73	0.51	3.76	0.55			
Interviewer Developmental History	425	3.55	0.82	3.57	0.89	428	3.54	0.85	3.66	0.84			
Education values (PTI-Teacher)	381	2.09	0.98	2.21	1.15	378	2.06	1.02	2.33	1.03			
Parent change: Satisfaction/difficulty	277 ^a			1.61	1.02	278 ^a			1.82	1.04			
Child aggressive-disruptive behavior													
CBCL Externalizing (<i>T</i> score)	426	61.31	8.72	62.76	9.39	428	61.64	9.24	62.68	9.25			
Parent Daily Report problem score	420	0.50	0.15	0.51	0.16	426	0.49	0.15	0.49	0.16			
Parent Ratings of Child Behavior Change	276 ^a			1.37	0.80	277 ^a			1.62	0.73			
TRF Externalizing (<i>T</i> score)	377	66.29	10.75	64.55	10.76	373	66.31	10.72	64.55	11.07			
Teacher TOCA-R Authority Acceptance Scale	425			1.92	1.16	435			1.95	1.12			
Teacher Ratings of Child Behavior Change	273 ^a			1.00	1.00	279 ^a			1.33	0.85			
Peer-nominated aggression	389			0.66	1.25	420			0.79	1.28			
Observed acts of aggression	418			0.09	0.11	425			0.10	0.14			
Observer TOCA-R Authority Acceptance Scale	418			0.62	0.64	425			0.50	0.51			
Special-education services (min/week)	414			31.93	157.6	421			10.92	92.45			
Parent-child interaction													
Warmth/affection/gratification (CII/IRS)	276 ^a	3.53	0.61	3.52	0.63	275 ^a	3.56	0.61	3.61	0.60			
Noncompliance/aggression (CII/BCS)	275 ^a	-0.01	0.73	-0.09	0.63	276 ^a	0.02	0.69	-0.01	0.69			

Variable	Control group				Intervention group			
	Kindergarten		Grade 1		Kindergarten		Grade 1	
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>

Note. ID = Identification; PQ = Parent Questionnaire; CII = Coder Impressions Inventory; BCS = Behavioral Coding System; IRS = Interaction Rating Scales; PTI = Parent-Teacher Involvement Questionnaire; CBCL = Child Behavior Checklist; TRF = Teacher's Report Form; TOCA-R = Teacher Observation of Classroom Adaptation—Revised.

^a Analyses conducted with partial cohorts.

Table 3
Analyses of Intervention Effects Using SAS PROC MIXED

Variable	Denominator <i>df</i>	<i>F</i>	<i>p</i> <	ES
Child social cognition and reading				
Emotion recognition	353	25.62	.0001	.54
Emotion coping	361	5.64	.02	.25
Social problem solving	359	9.61	.002	.33
Hostile attributions	359	0.22	.64	.05
Aggressive retaliation	359	4.57	.04	.23
Woodcock Letter–Word ID ^d	115	0.61	.44	.15
Spache Word Attack ^b	244	18.79	.0001	.56
Language arts grades (A = 13, F = 1) ^c	360	7.59	.007	.29
Child peer relations and social competence				
Time in positive peer interaction ^c	356	6.30	.02	.27
Peer social preference ^c	329	6.38	.02	.28
Peer-nominated prosocial ^c	329	3.72	.06	.21
Teacher-rated social competence ^b	217	0.56	.46	.10
Parent-rated social competence	349	0.16	.69	.04
Parenting behavior				
Harsh discipline				
PQ	366	0.09	.76	.03
Vignettes: Physical punishment	367	4.97	.03	.23
CII/BCS ^d	246	0.65	.43	.10
Warmth/positive involvement				
PQ	366	0.50	.48	.07
CII/BCS/IRS ^d	247	8.40	.005	.37
Appropriate/consistent discipline				
PQ	366	0.34	.56	.06
CII ^d	246	7.12	.009	.34
BCS ^d	246	1.18	.28	.14
Learning and school involvement				
Encourage learning (PQ/PTI–Parent)	366	0.22	.64	.05
PTI–Teacher	346	8.71	.004	.32
Parent rating of behavior change ^b	248	30.16	.0001	.70
Parent social cognition				
Attitudes toward the child				
PQ/Developmental History	367	0.06	.81	.03
Interviewer Developmental History	367	3.37	.07	.19
Educational values (PTI–Teacher)	344	2.51	.11	.17
Parent change: Satisfaction/difficulty ^b	247	6.69	.02	.33
Child aggressive–disruptive behavior				
CBCL Externalizing (<i>T</i> score)	362	0.25	.62	.04

Variable	Denominator <i>df</i>	<i>F</i>	<i>p</i> <	ES
Parent Daily Report problem score	359	2.53	.11	.17
Parent Ratings of Child Behavior Change ^b	245	15.55	.0001	.50
TRF Externalizing (<i>T</i> score)	338	0.05	.83	.02
Teacher TOCA–R Authority Acceptance Scale ^c	360	0.04	.85	.02
Teacher Ratings of Child Behavior Change ^b	244	17.38	.0001	.53
Peer-nominated aggression ^c	329	0.80	.38	.10
Observed acts of aggression ^c	356	1.05	.31	.11
Observer TOCA–R Authority Acceptance Scale ^c	356	8.76	.004	.31
Special-education services (min/week) ^c	358	6.19	.02	.26
Parent–child interaction				
Warmth/affection/gratification (CII/IRS) ^d	246	3.16	.08	.23
Noncompliance/aggression (CII/BCS) ^d	246	3.02	.09	.22

Note. ES = effect size; ID = Identification; PQ = Parent Questionnaire; CII = Coder Impressions Inventory; BCS = Behavioral Coding System; IRS = Interaction Rating Scales; PTI = Parent–Teacher Involvement Questionnaire; CBCL = Child Behavior Checklist; TRF = Teacher's Report Form; TOCA–R = Teacher Observation of Classroom Adaptation—Revised.

^a Administered to Cohort 1 only.

^b Administered to Cohorts 2 and 3 only. No preintervention score available.

^c No preintervention score available.

^d Analyses conducted with Cohorts 2 and 3. No preintervention score available for Cohort 1.

Table 4
Intervention Interactions and Adjusted Means

Group	Intervention	Control	<i>T</i>	<i>p</i> <
Spache Word Attack: Site × Intervention ^a				
Durham	.08	-.69	4.68	.0001
Nashville	-.05	-.15	0.66	<i>ns</i>
Rural PA	.22	.20	0.14	<i>ns</i>
Seattle	.39	.14	1.65	.10
Observer TOCA–R Authority Acceptance Scale: Site × Intervention ^b				
Durham	.51	.78	-2.89	.005
Nashville	.47	.56	-1.00	<i>ns</i>
Rural PA	.28	.27	0.14	<i>ns</i>
Seattle	.64	.74	-1.25	<i>ns</i>
Observer TOCA–R Authority Acceptance Scale: Cohort × Intervention ^c				
Cohort 1	.52	.68	-2.10	.04
Cohort 2	.40	.71	-4.63	.0001
Cohort 3	.51	.37	1.97	.05
Special-education services: Gender × Intervention ^d				
Boys	7.31	41.21	-3.07	.002
Girls	18.98	16.54	0.14	<i>ns</i>
TRF Externalizing: Site × Intervention ^e				
Durham	64.96	62.30	1.50	<i>ns</i>
Nashville	68.94	68.29	0.36	<i>ns</i>
Rural PA	64.87	61.19	2.32	.03
Seattle	60.27	66.20	-3.36	.001

Note. PA = Pennsylvania; TOCA–R = Teacher Observation of Classroom Adaptation—Revised; TRF = Teacher's Report Form.

^a $F(3, 244) = 5.25, p < .002$.

^b $F(3, 356) = 3.46, p < .02$.

^c $F(2, 356) = 9.90, p < .0001$.

^d $F(1, 439) = 4.11, p < .05$.

^e $F(3, 338) = 6.92, p < .0002$.

Table 5
Parental Satisfaction With the Fast Track Intervention

Item	<i>n</i>	<i>M</i>	<i>SD</i>
Helpfulness of parent group	237	3.69	0.36
Helpfulness of home visiting	243	3.82	0.42
Helpfulness of children's friendship group	242	3.86	0.45
Helpfulness of tutor to target child	247	3.90	0.31
Helpfulness of PATHS to child	213	3.75	0.48
Overall helpfulness of Fast Track to child and family	250	3.91	0.30
Overall helpfulness of Fast Track to other children in the family	189	3.61	0.63

Note. Higher scores indicate greater satisfaction. Possible range = 1 to 4. PATHS = Promoting Alternative THinking Strategies.