

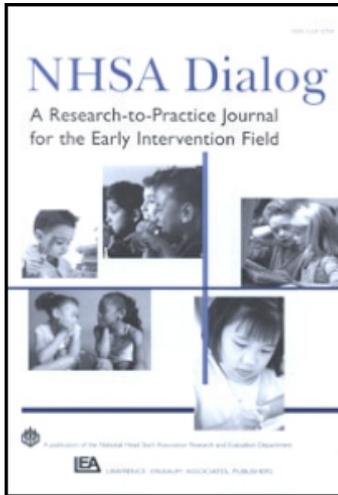
This article was downloaded by: [Oregon Research Institute]

On: 15 April 2009

Access details: Access Details: [subscription number 908493844]

Publisher Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



NHSA Dialog

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t775653686>

Using Positive Behavior Support Procedures in Head Start Classrooms to Improve School Readiness: A Group Training and Behavioral Coaching Model

Edward G. Feil ^a; Hill Walker ^b; Herbert Severson ^a; Annemieke Golly ^b; John R. Seeley ^a; Jason W. Small ^a

^a Oregon Research Institute, ^b Oregon Research Institute and University of Oregon,

Online Publication Date: 01 April 2009

To cite this Article Feil, Edward G., Walker, Hill, Severson, Herbert, Golly, Annemieke, Seeley, John R. and Small, Jason W. (2009) 'Using Positive Behavior Support Procedures in Head Start Classrooms to Improve School Readiness: A Group Training and Behavioral Coaching Model', *NHSA Dialog*, 12:2, 88 – 103

To link to this Article: DOI: 10.1080/15240750902774676

URL: <http://dx.doi.org/10.1080/15240750902774676>

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Using Positive Behavior Support Procedures in Head Start Classrooms to Improve School Readiness: A Group Training and Behavioral Coaching Model

Edward G. Feil

Oregon Research Institute

Hill Walker

Oregon Research Institute and University of Oregon

Herbert Severson

Oregon Research Institute

Annemieke Golly

Oregon Research Institute and University of Oregon

John R. Seeley and Jason W. Small

Oregon Research Institute

Social-emotional competence is an important determinant of school readiness. School readiness, in turn, sets the stage for school success. There is clear longitudinal evidence that school success, attachment and bonding to the schooling process, and full engagement of schooling can, in combination, operate as a protective factor against a host of long-term health risk behaviors and negative outcomes. Herein, we describe an experimental study of an evidence-based model of early intervention. Head Start teachers and assistants in 13 centers participated in the study. Centers were randomly assigned either to a wait-list control condition or the intervention. This universal intervention was based, respectively, upon the emerging bodies of knowledge in Positive Behavior Support and Behavioral Coaching. The intervention program's application was associated with medium to large effect size improvements in participating students' overall social competence (as an essential school readiness skill) as measured through (a) enhancements in their ratings of adaptive student behavior and (b) corresponding decreases in student levels of challenging behavior and aggression as reflected on teacher rating scales. Feedback from participating teachers indicated they viewed their experiences with the intervention quite positively.

Keywords: behavior problems, systems integration, preschool curriculum, emotional development, early intervention policy

Comprehensive studies have consistently shown that young children with challenging behavior often severely stress, and sometimes overwhelm, early childhood staff working within preschool Head Start (HS) and kindergarten classroom programs (Arnold et al., 2006; Fox & Little, 2001; Yoshikawa & Knitzer, 1997). The Child Mental Health Foundations and Agencies Network (FAN) conducted a large-scale study of children's social-emotional competence and its relationship to school readiness and success within early school settings (Peth-Pierce, 2000). The FAN report found that (a) social and emotional competence is critical to success in school; (b) social and emotional school readiness is related to later school and vocational success; (c) children's early relationships are the foundation for social and emotional competence in early childhood; and (d) social and emotional competence can be defined, reliably measured, and enhanced. The FAN report notes further that difficulty in establishing and maintaining early social relationships with parents, peers, and teachers serves as a major risk factor for later challenging behavior problems and academic failure. Early school failure and challenging behavior, in turn, have been longitudinally related to the development of antisocial behavior patterns and adolescent delinquency (Insel & Fenton, 2005; Maugis & Loeber, 1996; Moreland & Dumas, 2008).

HOW EXTENSIVE IS THE LACK OF SCHOOL READINESS?

Preschool and early childhood care settings have seen a large number of at-risk children who are unsocialized and unresponsive to the minimal but necessary demands of schooling (e.g., cooperating, sharing, following directions, listening to others, and focusing attention). Of equal and perhaps greater concern has been the increasing number of young children in these settings who display very challenging behavior patterns. Mature acts of deviance are being observed with younger and younger children who often are extremely aggressive, oppositional, and destructive in their social behavior (Loeber & Farrington, 1998).

A survey by Rimm-Kaufman, Pianta, and Cox (2000) documented the breadth and prevalence of school readiness problems among today's preschoolers. In their survey, up to 46% of teachers reported that about half their students entered kindergarten with problems in one or more areas as follows: difficulty following directions—46%; difficulty working independently—34%; difficulty working as part of a group—30%; problems with social skills—20%; immaturity—20%; and difficulty communicating/language problems—14%. Longitudinal studies indicate that these impairments in social competence and school readiness skills often serve as harbingers of future adjustment problems in multiple domains, including interpersonal relations, employment, academic achievement, and mental health (Gresham, 2002; Peth-Pierce, 2000).

Longitudinal studies of the progression of problem behavior patterns among youth in the United States, Canada, Australia, New Zealand, and Europe converge in documenting a path leading from early exposure to risk factors in family, neighborhood, and community contexts to behavioral manifestations in school, to delinquency and school dropout in adolescence (see Loeber & Farrington, 1998; Moreland & Dumas, 2008; Patterson, Reid, & Dishion, 1992). It is of critical importance to get at-risk children off this path as soon as possible in their lives and school careers through early, coordinated interventions involving parents and caregivers, teachers and peers. Preschool, kindergarten, and the primary grades are ideal settings and developmental

stages for accomplishing this task in collaboration with families (Fitzgerald & Van Schoiack Edstrom, 2006).

DEVELOPMENTAL LEVERAGE

Developmental leverage is the increased effectiveness or impact of an intervention applied at an advantageous time during a certain developmental stage or period. The preschool-age range affords an opportunity to potentially avert the future development of problem behaviors such as violence, substance abuse, educational failure, and criminal involvement. Effective preschool interventions and quality early childhood development programs that are coordinated across home, school, and community settings are perhaps one of the best hopes we have for addressing challenging behavior before it becomes chronic and intractable (Patterson & Yoerger, 2002). Policy studies, longitudinal analyses, and cost-benefit analyses reported in the literature on this question show impressive net returns from early childhood investments of proven practices and adequate resources (see Lynch, 2004; Masse & Barnett, 2002; Ramey & Ramey, 2004; Schweinhart, 2005).

Research evidence strongly suggests that a substantial amount of problem behavior among school-age children has its origins in early childhood (see Walker, Ramsey, & Gresham, 2004). The preschool-age period, from 3 to 5 years old, unlike later childhood, allows a unique opportunity to dramatically affect children's lives in positive ways. For instance, preschoolers are generally more responsive to adult attention and tactics of adult social influence than are older children. Preschoolers are also learning how to interact with their peers, and this often directly influences their future relationships. Thus, the preschool-age range can be viewed as an opportunity to provide developmental leverage for preventing later potential problems (e.g., academic failure). In addition, the adjustment from home to school can be very challenging for young children. High-quality early intervention, involving parents, teachers, peers, and targeted at-risk children, delivered at the beginning of a child's school career, can have powerful effects in protecting against a range of adolescent health risk behavioral outcomes (e.g., violent delinquent acts, heavy drinking, sexually transmitted disease, school failure and dropout; see Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999).

POSITIVE BEHAVIORAL SUPPORT (PBS) AND PRESCHOOLS

In the past decade, PBS approaches and models have been implemented nationwide in a variety of elementary, middle, and high school settings. Within this growing literature, investigators and school administrators are reporting 20% to 60% reductions in office discipline referrals, increased positive social climate, and improved academic performance when they implement school-wide PBS practices with integrity (Horner et al., 2004). The main messages from the PBS model, as adapted for school applications, are as follows: (a) schools can play key roles in addressing the rising need for providing PBS services to regular and at-risk student populations; (b) schools have access to at-risk children early on in their schooling careers and can deliver preventive interventions seamlessly; (c) the educational setting is an ideal context for implementing coordinated primary, secondary, and tertiary prevention efforts; and (d) the most efficient approach

to decreasing problem behaviors in classrooms is through investments in proven infrastructure systems that foster prevention.

The application of PBS has been examined using designs to test school-wide effects (Turnbull et al., 2002; Warren et al., 2003), impact on individual students (Edmonson & Turnbull, 2002; Turnbull et al., 2002), and effectiveness in secondary-level schools (Bohanon et al., 2006). School-wide positive behavior support strategies have also been researched, albeit to a limited degree, and adopted within regular preschool settings (e.g., Duda, Dunlap, Fox, Lentini, & Clarke, 2004; Vanderheyden & Snyder, 2006). HS settings would appear to be natural contexts for applying proactive, PBS teacher training interventions.

Rationale for Intervention Components

PBS can be viewed as a broad range of systemic and individualized strategies for achieving important social and learning outcomes while preventing problem behavior (Sugai & Horner, 2002). PBS is a systems approach to developing core values or skills taught as behavioral expectations and combined with adult recognition and reinforcement when behaviorally expressed by students within a range of school settings. The dual goals of PBS are to create a positive school culture and to achieve social and academic success for all students (Loman & Horner, 2007). PBS behavioral technology addresses all three levels of the prevention continuum of the public health system as adapted for school use by Walker et al. (1996) in which universal, targeted, and intensive forms of intervention are applied. Universal interventions are those administered to all children as part of the preschool's curriculum. Targeted interventions are directed to children already demonstrating higher levels of problem behavior and at higher risk for enduring challenging behavior. Intensive interventions are given to children demonstrating very aversive behaviors and usually require services in multiple settings (e.g., both home and classroom). There is substantial evidence that a staff development sequence in which trainees are instructed in specific skills and then provided with opportunities to apply those skills within practice contexts under the supervision of expert coaches or supervisors is an effective behavior change strategy (Fitzgerald & Van Schoiack Edstrom, 2006; Sprague & Horner, 2006).

Research Questions

The research reported herein designed and implemented a PBS model of early intervention for use with HS teachers, teacher assistants, and students. The study's aim was to determine, via a randomized controlled pilot trial, the efficacy of the preschool adaptation of a PBS model as determined by improvements in child behavior and social skills outcomes of preschool children living in low-income households. This intervention included monthly 2- to 3-hr training and classroom consultation sessions implemented over a school year. Most studies of PBS to date are either single subject in design (e.g., Duda et al., 2004; Kartub, Taylor-Greene, March, & Horner, 2000) or are descriptive studies (McIntosh, Chard, Boland, & Horner, 2006); very few have implemented a randomized design. The research reported herein provides one of the few randomized control trials focused on teacher training that uses principles of PBS.

METHOD

Participants

This research was conducted in collaboration with two HS programs in Oregon (i.e., Head Start of Lane County and Kidco Head Start of Lebanon). Across 2 academic years, 33 classrooms having a teacher, teacher assistant, and approximately 18 children within each were recruited. These 33 classrooms were located in 13 HS centers or sites across the two programs; 8 of these centers were located in Lane County Head Start and 5 were located in Kidco Head Start. Each center was housed in a separate building. These 13 centers, their assigned classrooms, and participating HS staff were randomized to either experimental or wait-list control conditions (i.e., 6 to the intervention condition and 7 to the wait-list control condition). All classrooms were half-day with the exception of one year-round center full-day program. The HS centers, classrooms, and teachers who were randomly assigned to the wait-list control condition were provided with the intervention during the following year after the postintervention data were collected for those assigned to the intervention condition. Randomization occurred by center during a management meeting in the later summer/early fall of each intervention year. Centers were matched by size and assigned to condition using a coin flip by a researcher in the presence of the participating managers. Teachers were then informed that their center had been assigned to either the 1st (intervention) or 2nd year (wait-list control). Experimental and control classrooms were located in separate centers; in randomizing by center, we minimized the chance for cross-condition contamination.

The two participating HS programs operated approximately 78 classrooms while serving a total of approximately 1,400 children who were 3 and 4 years of age. All HS teachers and their assistants in these sites were invited to participate in this study. After teachers agreed to participate voluntarily, parents of children in these classrooms were invited to participate in a research study about "classroom environments and child development." The sample 265 children consisted of 45.7% females. Ten percent of the children in the sample were eligible for special education services and 5.7% were undergoing eligibility evaluations at the time. Of the children eligible for special education services, 23.3% were certified under the emotional/behavioral disorder category, 55.8% for speech/language delay, 18.6% under the noncategorical/developmental delay, and 9.3% under other categories (e.g., other health impaired). Seventy-three percent of the children were White and 31% were Hispanic (see Table 1).

TABLE 1
Student-Level Baseline Demographic Characteristics by Condition

Demographic Characteristic	Total ($n = 265$)	Control ($n = 125$)	Intervention ($n = 140$)	Test Statistic
Child age M (SD)	4.0 (0.5)	4.0 (0.4)	4.0 (0.6)	0.15
% Female children	45.7	47.2	44.3	0.23
% White children	73.3	71.4	75.0	0.28
% Hispanic children	31.0	26.3	35.2	1.86
% Mother of child had some college	30.3	35.2	25.5	2.03

Note. T test is reported for age; chi-square tests are reported for gender, race, ethnicity, and mother education. The two conditions did not differ significantly at $p < .05$ on any of the characteristics.

Participating teachers had an average of 10 years of teaching in HS. Thirty-five percent received a childhood development credential, and 60% had a bachelor's (or master's) degree. The teacher demographics were similar across condition except for teachers in the intervention condition having a greater overall number of years teaching preschool (22 vs. 14 years) but an equal number of years teaching at HS.

As part of a national research study (Head Start Quality Research Centers, http://www.acf.hhs.gov/programs/opre/hs/qrc_two/index.html), a sample of the classrooms ($N = 23$) were observed by staff from the data collection contractor (WESTAT) using the Early Childhood Environment Rating Scale (ECERS; Harms, Clifford, & Cryer, 1998). This sample of classrooms received an average ECERS score of 4.85 ($SD = 0.80$), which falls in the "good" category and is equivalent to scores that resulted from a national representative descriptive study of HS (Administration for Children and Families, 2003). All classrooms reported using Creative Curriculum (Trister-Dodge, Colker, & Heroman, 2002), which identifies important knowledge, skills, and concepts for preschool children to acquire in several content areas (e.g., literacy, mathematics, science). One center in each condition reported using the Second Step program (Grossman et al., 1997), a violence prevention program that integrates academic and social and emotional learning.

Intervention Procedures

The purpose of our intervention model described later was to equip HS teachers and teacher assistants to achieve a functional mastery of PBS procedures through the use of a combined didactic and practice model as follows: (a) participating HS staff enrolled in a yearlong extension course in which their tuition costs were paid and that focused on mastery of effective classroom management procedures; and (b) teachers agreed to accept follow-up coaching, technical assistance, and consultation regarding application of the procedures that were being taught in the didactic extension course.

Teachers and other teacher staff attended a monthly 2-hr class as a teaching team (taught by Annemieke Golly) with members of each team receiving approximately 14 hr of total training over the school year. The class sessions were held in both the mornings and the afternoons of scheduled course meeting days in order to accommodate varying teaching schedules. In a workshop-type atmosphere within their respective classroom teaching teams, HS staff learned to (a) develop behavior expectations (i.e., rules) and consequences; (b) create strategies to teach these behavioral standards to HS students through use of examples and nonexamples, feedback, and debriefing processes; (c) make plans to positively reinforce behavioral expectations including use of formal motivational systems (e.g., charts, graphs, and group reward activities); (d) recognize selected students correctly performing behavioral expectations and refrain from criticizing those who do not or do so incorrectly; (e) acquire alternative strategies for minimizing attention directed to minor inappropriate behavior; and (f) develop plans for addressing unacceptable student behavior.

During their daily teaching schedule, participating HS staff were asked to initially teach, model, and periodically review expectations with their students during a circle time activity and within generalized settings as appropriate (e.g., hallways, playground, and gym). Teachers and teacher assistants were taught to (a) precorrect students for potentially difficult times or situations (e.g., "I am going to watch who can walk all the way past the library without talking")

and (b) acknowledge and reinforce when children comply with expectations (e.g., “Because this morning *everyone* showed respect by working together so well, we’ll have five minutes of extra free time”). Classroom organization was also reviewed to provide routines for entering and exiting, transitions, and quiet-time areas. A behavioral coach followed up with each participating HS teacher and was available for one-on-one consultation in his or her respective classroom during instructional hours.

Training Components

The nine monthly classes were divided into three sessions each of the following levels of the positive behavior support model triangle. The first three sessions focused on universal interventions for all students, the second three sessions focused on selected interventions for some students, and the remaining three sessions focused on targeted interventions for a few students.

During the three sessions on universal interventions, the staff was encouraged to select three behavioral expectations, such as Be Safe, Be Respectful, and Be Responsible. These three expectations were operationalized for each setting (e.g., hallways, bathrooms, and playground). Staff was taught to design lessons plans on how to teach and reinforce the expectations in each setting. For each HS center, teachers, supervisors, and support staff designed a positive reinforcement system to reinforce the skills and to focus on positive behavior. The staff also decided how to consistently deal with unacceptable behavior.

The focus of the second set of three sessions was on classroom management and the effective use of proactive and preventive strategies targeted to a small group of students (e.g., attention signal, class-wide motivational systems, short and clear directions, and concentration game). One of the sessions focused on the First Step to Success program (Walker et al., 1997) for those students who needed more than the universal intervention. Guidelines from chapter 19 in the BEST behavior book were used also in these sessions (Sprague & Golly, 2005).

As part of the learning process, all participating staff (managers, family support workers, teachers, and assistant teachers) completed an inventory adapted from PBS self-assessment tools (Sprague & Golly, 2005; Sugai, Lewis-Palmer, Todd, & Horner, 2001) that was designed to collect information about classroom management practices (see Figure 1). This inventory was designed to profile each HS classroom’s management practices in order to determine the extent to which best and preferred management practices were in place and provided the team with specific areas to target for improvement. A total of 20 such classroom practices are listed in this self-assessment tool and were rated by each participating HS teacher as “completed,” “working on it,” or “to do.” Results of this survey were jointly reviewed and discussed with the HS teacher by Annemieke Golly, who served as the course instructor and primary behavioral coach. HS teachers were also asked to indicate their top three priorities from the 20-item list in order to provide an initial focus for delivering needed technical assistance. This assessment provided an ongoing instrument for maximizing the responsiveness to the technical assistance needs of each teacher.

The final three sessions dealt with intensive interventions for students who needed more than universal and targeted interventions. HS staff used the book *Why Johnny Doesn’t Behave: Twenty Tips and Measurable BIPs* (Bateman & Golly, 2003) to conduct functional behavior assessments

School ID _____

Sequence #: _____

Effective Pre-school and Classroom Management Status of Program Planning

Site Name _____ Manager _____ Your Name _____

	Completed	Working On It	To Do	Check Top 3 Priorities
1. A representative team is formed for implementation planning and evaluation of effectiveness.	Completed	Working On It	To Do	
2. Program staff (90% or more) are committed to improving school discipline and safety by implementing strategies you will be learning during the UO Class.	Completed	Working On It	To Do	
3. Current Systems of Support (School-wide, Classroom, Non-classroom, and Individual Student) have been assessed.	Completed	Working On It	To Do	
4. Ongoing bi-weekly team meetings are scheduled for training and planning.	Completed	Working On It	To Do	
5. An action plan with clear goals and objectives has been developed.	Completed	Working On It	To Do	
6. School rules for behavior expectations have been determined (e.g. safe, respectful, responsible).	Completed	Working On It	To Do	
7. Lesson plans have been developed for teaching the behavioral expectations.	Completed	Working On It	To Do	
8. Rules are posted and/or visible in common areas (e.g. hallways, classrooms, cafeteria).	Completed	Working On It	To Do	
9. Staff has been trained to teach behavioral expectations.	Completed	Working On It	To Do	
10. Staff teaches rules and behavioral expectations for each rule.	Completed	Working On It	To Do	
11. A system is in place for recognizing and reinforcing appropriate behavior.	Completed	Working On It	To Do	
12. A system is in place for responding to inappropriate behavior.	Completed	Working On It	To Do	
13. Staff receives regular (e.g. monthly) feedback on key discipline outcomes (e.g. referrals, infractions).	Completed	Working On It	To Do	
14. Staff uses consistent consequences for inappropriate behavior.	Completed	Working On It	To Do	
15. Data are collected (referrals, surveys) to guide decision-making.	Completed	Working On It	To Do	
16. The program has defined systems for behavior support in classrooms.	Completed	Working On It	To Do	
17. Staff adapts curriculum to reduce misbehavior in the classroom.	Completed	Working On It	To Do	
18. Staff has a clear method for gaining assistance with problem students.	Completed	Working On It	To Do	
19. Staff uses effective classroom management methods.	Completed	Working On It	To Do	
20. Staff is trained in functional behavioral assessment and positive behavioral intervention for students with chronic problem behavior.	Completed	Working On It	To Do	

FIGURE 1 Classroom management self-inventory. Preschool Positive Behavior Support Survey adapted from Sprague & Golly (2005) and Sugai, Lewis-Palmer, Todd, & Horner (2001).

(FBA) and design positive behavior plans based on the FBA. The site managers attended both the morning and afternoon sessions to ensure consistency across the program.

For each monthly session, a PowerPoint presentation was prepared that included video clips and slides demonstrating the concepts in HS classrooms. Staff received a handout with all presentation slides. In addition, a videotape titled *Universal Interventions in Head Start Settings*, showing examples of the skills, was produced and can be ordered from the Institute on Violence and Destructive Behavior at the University of Oregon (IVDB; E-mail: ivdb@uoregon.edu).

Follow-up coaching and technical assistance were provided as requested by each HS teacher. Most of this consultation was focused on classroom management (e.g., coach modeled how to teach interventions such as attention signal, concentration game, and asking for help appropriately). Both the HS site managers and staff from the University of Oregon provided technical and coaching assistance dealing with effectively applying skills taught at the monthly sessions.

Measures

The Early Screening Project (ESP; Walker, Severson, & Feil, 1995) teacher report measures were used as dependent variables to assess the PBS intervention's effectiveness in this study. These rating scales included the following: (a) the Adaptive Behavior Index (ABI), (b) the Maladaptive Behavior Index (MBI), (c) the Aggressive Behavior Scale (ABS), and (d) the Social Interaction Scale (SIS). Intervention and wait-list control teachers completed these four measures on students in their classrooms for whom parental consent had been received on two occasions—pre- and posttest. Pretest measures were administered in the fall prior to the intervention's implementation and posttest measures in the spring following its completion.

The ESP is a measurement system for the early screening and identification of preschool children, in the 3- to 5-year age range, who are at risk for either externalizing or internalizing behavior disorders/problems (Feil & Becker, 1993; Feil, Severson, & Walker, 1998; Feil, Walker, Severson, & Ball, 2000; Feil, Walker, & Severson, 2002).

Aggressive behavior scale (ABS). The ABS included nine items such as physically aggressive, damages property, and ignores teacher warnings (Cronbach's alpha = .86). Scores of 15 for boys and 14 for girls on the ABS are the clinical cutoff points at 1.0 standard deviation above the mean.

Maladaptive behavior index (MBI). The nine-item MBI assesses the student's teacher-related and peer-to-peer behavioral adjustment (Cronbach's alpha = .89). Scores of 20 on the MBI are the clinical cutoff points at 1.0 standard deviation above the mean for both girls and boys.

Adaptive behavior index (ABI). The ABI contained eight items representing overall prosocial behavior such as cooperation and positive social interactions (Cronbach's alpha = .94). At 1.0 standard deviation below the mean, boys with scores of 27 or less and girls with scores of 29 or less are considered at risk.

Social interaction scale (SIS). The SIS asks the teacher to rate on eight items how often specific behaviors related to social interaction have occurred, such as "verbally responds to peer's initiation," scored on a 7-point Likert scale (Cronbach's alpha = .95). At 1.0 standard deviation below the mean, boys with scores of 26 or less and girls with scores of 31 or less are considered at risk.

Teaching Training Satisfaction

Staff feedback was collected at the end of the intervention school year in the intervention condition. Staff provided consumer satisfaction narrative comments in response to four broad questions regarding the value of the extension course on classroom management in which they were enrolled and the knowledge and skills gained through the behavioral coaching process. For the consumer satisfaction feedback, participants were asked to provide narrative comments in

relation to each week's topic and queried skills to be used in the classroom, questions/queries, future training items, and positive aspects of the training. Narrative comments from feedback from HS teachers in the experimental condition at the end of their participation reflect a good understanding of basic classroom practices for skillfully managing classrooms of students as well as for coping with challenging behavior problems manifested by individual students. They also reflect a realistic understanding of the complexity of students' behavior, the conditions that may account for why they behave as they do, and the importance of supporting difficult students in their efforts at behavior change. Finally, the comments were quite positive regarding the instructor and the experience of participating in the study.

Data Analysis

Because HS centers, rather than students, were randomly assigned to intervention and wait-list control conditions, the assumption of independence among children may have been violated. Analyses that do not correctly model multilevel data can suffer from aggregation bias, misestimated standard errors, heterogeneity of regression, and inflated Type I error rates (Gibbons et al., 1993; Murray, 1998; Raudenbush & Bryk, 2002). Therefore, hierarchical analyses were conducted in which children were nested within centers using a mixed-model analysis of covariance (ANCOVA) to compare intervention versus wait-list control centers on each of the four posttest outcome measures while controlling for pretest scores. ANCOVA models were tested with SAS PROC MIXED 9 (SAS Institute, 2005) using the restricted maximum likelihood method recommended for multilevel models (Hox, 2002; Verbeke & Molenberghs, 2003). For each model, we estimated fixed effects and variance components.

Given that the appropriate unit of analysis is at the HS center level, the statistical power for this feasibility study is rather limited. Thus, rather than using traditional levels of alpha (e.g., $p < .05$) to determine statistically significant levels, effect sizes were instead used to evaluate clinically meaningful outcomes. Effect sizes were estimated using the following formula that transforms the t value and degrees of freedom from a statistical test into a correlation coefficient (Hunter & Schmidt, 2004; Rosenthal & Rubin, 2003):

$$r = \frac{t}{\sqrt{t^2 + df}}$$

The r value computed from this formula equals the partial correlation coefficient, providing the magnitude of the association between intervention condition and the posttest outcome measure controlling for the pretest score. Based on Cohen (1988), partial correlation coefficients of .14, .36, and .51 are considered small, medium, and large effect sizes, respectively (pp. 413–414). For purposes of this initial feasibility study, medium-size effects or larger are considered clinically meaningful and are judged to provide empirical support for the intervention model used.

RESULTS

The HS center-level pretest and posttest means for the four ESP outcome measures are reported in Table 2 for the two study conditions (intervention and wait-list control). As can be seen, the two problem behavior mean scale scores (i.e., ABS and MBI) assessed at posttest remained at

TABLE 2
Head Start Center-Level Means and Standard Deviations by Condition

Measure	Intervention (<i>n</i> = 6)		Control (<i>n</i> = 7)	
	Pre <i>M</i> (<i>SD</i>)	Post <i>M</i> (<i>SD</i>)	Pre <i>M</i> (<i>SD</i>)	Post <i>M</i> (<i>SD</i>)
Aggressive Behavior Scale	13.0 (1.2)	13.1 (2.2)	11.8 (1.0)	14.6 (4.6)
Maladaptive Behavior Index	17.0 (2.4)	16.4 (3.6)	16.0 (2.6)	18.5 (4.3)
Adaptive Behavior Index	30.3 (0.7)	33.2 (2.3)	30.9 (2.9)	31.9 (4.5)
Social Interaction Scale	35.0 (3.1)	42.6 (2.0)	35.1 (3.6)	42.3 (4.6)

the pretest levels for the intervention centers, but an escalation of these scales was observed for centers assigned to the control condition. With respect to the ABI score, greater pre-post mean differences were obtained for the intervention condition than the control condition. Thus, the center-level descriptive statistics indicate that the intervention effects achieved were in the hypothesized direction. That is, compared with controls, the HS intervention centers showed evidence for preventing the escalation of problem behaviors as well as promoting increases in adaptive/prosocial behaviors.

The results of multilevel ANCOVA models for each of the four outcome measures are presented in Table 3. The partial correlations for the association between intervention condition and posttest score controlling for pretest levels were ABS = $-.36$, MBI = $-.60$, ABI = $.41$, and SIS = $.28$. Thus, medium-to-large effect sizes were obtained for the association between study condition and each of the four ESP outcome measures, which provides supportive evidence for the intervention model.

DISCUSSION

We believe this study is a promising demonstration of the potential power of providing support and structured training to HS classroom teachers and their teacher assistants. PBS methods have been widely disseminated within K–12 school settings. However, there needs to be a structure, support, and delivery system developed for making available both PBS-type training and ongoing coaching support for teachers in HS classrooms. It is clear that (a) early intervention can prevent the escalation of problematic behavior that may lead to more serious behavior problems in the future and (b) HS classrooms offer an opportunity to make a real difference in the lives of thousands of children.

Teachers learned, via this study, that positive changes in their own behavior helped to redirect child behavior in positive directions. The teachers' narrative descriptions of their experiences in the study were positive. We are hopeful that these positive outcomes will contribute to their sustaining and elaborating their newly acquired skills over the long term.

Many HS children come to their HS classroom unprepared for the ordinary and necessary demands of the schooling process. Longitudinal research has shown that children who enter school with well-developed negative behavior patterns will intensify their challenging behavior without intervention (Patterson et al., 1992). We believe that this developmental process is illustrated with the increase in teacher's rating of maladaptive behavior in the control classrooms. Teacher

TABLE 3
Results From Multilevel Analysis of Covariance Models

	Aggressive Behavior Scale	Maladaptive Behavior Index	Adaptive Behavior Index	Social Interaction Scale
Fixed effects composite model				
Intercept	Estimate (<i>SE</i>) <i>pr</i> 6.3231 (1.3721) .81	7.7418 (1.1328) .90	14.1980 (1.6787) .93	22.9400 (1.8199) .97
Covariate	Estimate (<i>SE</i>) <i>pr</i> 0.6858 (0.0588) .60	0.6735 (0.0488) .66	0.5687 (0.0457) .62	0.5437 (0.0434) .62
Condition	Estimate (<i>SE</i>) <i>pr</i> -2.2050 (1.7174) -.36	-2.8952 (1.1659) -.60	1.9664 (1.3204) .41	1.3381 (1.3767) .28
	Size of effect Medium	Large	Medium/Large	Medium
Variance components				
Level-1:	Student 22.3988	29.4413	24.2989	73.8770
Level-2:	Center 7.9685	2.5677	4.0476	1.9647

training to address these essential social skills for enhancing the school success of young children also provides an opportunity to include specific behaviorally oriented interventions into the classroom curriculum. Adoption of the principles and procedures of PBS approaches offers a viable means for achieving this goal in HS. We think the combined didactic and practice model demonstrated in this study is worthy of further investigation as a cost-effective means of improving HS teacher and child outcomes.

There are some limitations in the study that should be acknowledged such as attrition from pre- to postassessment occasions, which could have introduced biases due to missing data. All attrition was due to withdrawal from the program or movement to another classroom and not due to children's behavior. The mobility of this population has been a challenge in conducting research (Feil et al., 2005). It should also be noted that we randomized by HS center and the study's dependent measures were self-reports of participating teachers regarding their students' behavior; however, individual students were not the unit of assignment—HS centers were. We did not have sufficient statistical power to conduct formal hypothesis testing due to the limited number of participating centers. Although we did receive positive feedback and self-reports of implementation, this study lacked a fidelity of implementation measure that would have provided greater confidence that all intervention teachers received similar training levels and obtained proficiency. Finally, it was not possible to separate the potential confound of HS teacher participation in the intervention from possibly influencing their ratings of child behavior given that all four dependent measures were based on teacher self-report. Direct, in vivo behavioral observations, recorded by reliable observers, would be required to address this limitation. In future research, our intention is to scale up the intervention model and to include direct observations of student behavior in order to take these limitations into account.

There is a strong evidence base that individualized targeted interventions with preschool children can alter the course of developing child conduct behaviors. Classroom-based interventions delivered on both a universal and targeted levels (such as PBS) have shown to have positive effects for elementary-age children, but the research results demonstrating effectiveness for younger children are only currently emerging. This research conducted a randomized control trial to evaluate the effectiveness of a PBS-type intervention for children in HS settings. In this research, we have found PBS methodology to be effective in reducing teacher ratings of young children's challenging behavior and increasing teacher ratings of prosocial behavior when compared with usual-care conditions. Further research replicating this effect with a larger sample is needed for confirmation. Yet, this research provides a good foundation for further studies incorporating PBS interventions with preschool-age children.

ACKNOWLEDGMENTS

We acknowledge the support of this research by Grants 90YD0098 from the U.S. Agency for Children, Youth and Families, Health and Human Services and H023C30017 from the U.S. Department of Education. We thank the staff and parents of Head Start of Lane County and Kidco Head Start for their time, trust, and cooperation. In particular, we thank M. Zoe Brady, Darcey Edwards, Kristina Hulegaard, and Bonnie Seibert for their effort in this research project.

REFERENCES

- Administration for Children and Families. (2003). *Head Start FACES 2000: A whole-child perspective on program performance*. Washington, DC: U.S. Department of Health and Human Services.
- Arnold, D. H., Brown, S. A., Meagher, S., Baker, C. N., Dobbs, J., & Doctoroff, G. L. (2006). Preschool-based programs for externalizing problems. *Education and Treatment of Children, 29*(2), 311–339.
- Bateman, B. D., & Golly, A. (2003). *Why Johnny doesn't behave: Twenty tips and measurable BIPs*. Verona, WI: IEP Resources.
- Bohanon, H., Fenning, P., Carney, K. L., Minnis-Kim, M. J., Anderson-Harriss, S., Mortoz, K. B., et al. (2006). School-wide application of positive behavior support in an urban high school: A case study. *Journal of Positive Behavior Interventions, 8*(3), 131–145.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Duda, M. A., Dunlap, G., Fox, L., Lentini, R., & Clarke, S. (2004). An experimental evaluation of positive behavior support in a community preschool program. *Topics in Early Childhood Special Education, 24*, 143–155.
- Edmonson, H., & Turnbull, A. (2002). Positive behavioral supports: Creating supportive environments at home, in schools, and in the community. In W. I. Cohen, L. Nadel & M. E. Madnick (Eds.), *Down syndrome: Visions for the 21st century* (pp. 357–375). New York: Wiley-Liss.
- Feil, E. G., & Becker, W. C. (1993). Investigation of a multiple-gated screening system for preschool behavior problems. *Behavioral Disorders, 19*(1), 44–53.
- Feil, E. G., Severson, H. H., & Walker, H. M. (1998). Screening for emotional and behavioral delays: The early screening project. *Journal of Early Intervention, 21*(3), 252–266.
- Feil, E. G., Small, J. W., Forness, S. R., Serna, L.A., Kaiser, A. P., Hancock, T. B., et al. (2005). Using different measures, information, and clinical cut-off points to estimate prevalence of emotional or behavioral disorders in preschoolers: Effects on age, gender, and ethnicity. *Behavioral Disorders, 30*(4), 375–391.
- Feil, E. G., Walker, H. M., & Severson, H. H. (2002). Early screening and intervention to prevent the development of aggressive, destructive behavior patterns among at-risk students. In M. R. Shinn, G. Stoner, & H. M. Walker (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches*. Washington, DC: National Association of School Psychologists.
- Feil, E. G., Walker, H. M., Severson, H. H., & Ball, A. (2000). Proactive screening for emotional/behavioral concerns in Head Start preschools: Promising practices and challenges in applied research. *Behavior Disorders, 26*(1), 13–25.
- Fitzgerald, P., & Van Schoiack Edstrom, L. (2006). Second Step: A violence prevention curriculum. In S. Jimerson & M. Furlong (Eds.), *The handbook of school violence and school safety* (pp. 383–394). London: Erlbaum.
- Fox, L., & Little, N. (2001). Starting early: Developing school-wide behavior support in a community preschool. *Journal of Positive Behavior Interventions, 3*(4), 251–254.
- Gibbons, R. D., Hedeker, D., Elkin, I., Waternaux, C., Kraemer, H. C., Greenhouse, J. B., et al. (1993). Some conceptual and statistical issues in the analysis of longitudinal psychiatric data. *Archives of General Psychiatry, 50*, 739–750.
- Gresham, F. M. (2002). Teaching social skills to high-risk children and youth: Preventive and remedial strategies. In M. Shinn, H. Walker, & G. Stoner (Eds.), *Interventions for academic and behavior problems II: Preventive and remedial approaches* (pp. 403–432). Bethesda, MD: National Association of School Psychologists.
- Grossman, D. C., Neckerman, H. J., Koepsell, T. D., Liu, P. V., Asher, K. N., Beland, K., et al. (1997). Effectiveness of a violence prevention curriculum among children in elementary school: A randomized controlled trial. *Journal of the American Medical Association, 277*(20), 1605–1612.
- Harms, T., Clifford, R. M., & Cryer, D. (1998). *Early childhood environment rating scale*. New York: Teachers College Press.
- Hawkins, J. D., Catalano, R. F., Kosterman, R., Abbott, R., & Hill, K. G. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. *Archives of Pediatrics & Adolescent Medicine, 153*, 226–234.
- Horner, R. H., Todd, A., Lewis-Palmer, T., Irvin, L., Sugai, G., & Boland, J. (2004). The School-Wide Evaluation Tool (SET): A research instrument for assessing school-wide positive behavior support. *Journal of Positive Behavior Interventions, 6*(1), 3–12.
- Hox, J. J. (2002). *Multivariate analysis: Techniques and applications*. Mahwah, NJ: Erlbaum.
- Hunter, J. E., & Schmidt, F. L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings* (2nd ed.). Newbury Park, CA: Sage.

- Insel, T. R., & Fenton, W. S. (2005). Psychiatric epidemiology: It's not just about counting anymore. *Archives of General Psychiatry*, 62, 590–592.
- Kartub, D. T., Taylor-Greene, S., March, R. E., & Horner, R. H. (2000). Reducing hallway noise: A systems approach. *Journal of Positive Behavior Intervention*, 2(3), 179–182.
- Loeber, R., & Farrington, D. P. (Eds.). (1998). *Serious and violent juvenile offenders: Risk factors and successful interventions*. Thousand Oaks, CA: Sage.
- Loman, S., & Horner, R. H. (2007). *What we know about School-wide Positive Behavior Support*. Children and Adults with Attention Deficit Disorders (CH.A.D.D.). www.chadd.org
- Lynch, R. G. (2004). Overview of the benefits of early childhood development programs. In *Exceptional returns: Economic, fiscal and social benefits of investment in early childhood development*. Washington, DC: Economic Policy Institute.
- Masse, L., & Barnett, W. (2002). A benefit-cost analysis of the Abecedarian Early Childhood Intervention. In H. Levin & P. McEwan (Eds.), *Cost-effectiveness and educational policy*. Larchmont, NY: Eye on Education.
- Maugin, E., & Loeber, R. (1996). Academic performance and delinquency. In M. Tonry (Ed.), *Crime and justice: An annual review of research* (Vol. 20, pp. 145–264). Chicago: University of Chicago Press.
- McIntosh, K., Chard, D., Boland, J., & Horner, R. H. (2006). Demonstration of combined efforts in school-wide academic and behavioral systems and incidence of reading and behavior challenges in early elementary grades. *Journal of Positive Behavior Interventions* 8(3), 146–154.
- Moreland, A. D., & Dumas, J. E. (2008). Categorical and dimensional approaches to the measurement of disruptive behavior in the preschool years: A meta-analysis. *Clinical Psychology Review*, 28, 1059–1070.
- Murray, D. M. (1998). *Design and analysis of group-randomized trials*. New York: Oxford University Press.
- Patterson, G., Reid, J., & Dishion, T. (1992). *Antisocial boys*. Eugene, OR: Castalia Press.
- Patterson, G., & Yoerger, K. (2002). A developmental model for early and late-onset delinquency. In J. Reid, G. Patterson, & J. Snyder (Eds.), *Antisocial behavior in children and adolescents* (pp. 147–172). Washington, DC: American Psychological Association.
- Peth-Pierce, R. (2000). *A good beginning: Sending America's children to school with the social and emotional competence they need to succeed*. Bethesda, MD: Child Mental Health Foundations and Agencies Network (FAN).
- Ramey, C., & Ramey, S. (2004). Early learning and school readiness: Can early intervention make a difference? *Merrill-Palmer Quarterly*, 50, 471–491.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Rimm-Kaufman, S. E., Pianta, R. C., & Cox, M. J. (2000). Teachers' judgments of problems in the transition to kindergarten. *Early Childhood Research Quarterly*, 15(2), 146–166.
- Rosenthal, R., & Rubin, D. B. (2003). r-sub (equivalent): A simple effect size indicator. *Psychological Methods*, 8(4), 492–496.
- SAS Institute. (2005). *SAS OnlineDoc 9.1.3: SAS/STAT 9.1 user's guide*. Cary, NC: SAS Institute, Inc. Retrieved September 20, 2006, from SAS OnlineDoc 9.1.3 Web site: <http://v9doc.sas.com/sasdoc>
- Schweinhart, L. (2005). *The High/Scope Perry Preschool Study Through Age 40*. Ypsilanti, MI: High/Scope Educational Research Foundation.
- Sprague, J., & Golly, A. (2005). *BEST behavior: Building positive behavior support in schools*. Longmont, CA: Sopris West.
- Sprague, J., & Horner, R. H. (2006). School-wide positive behavior supports. In S. Jimerson & M. Furlong (Eds.), *Handbook of school violence and school safety*. (pp. 413–438). London: Erlbaum.
- Sugai, G., Lewis-Palmer, T., Todd, A. W., & Horner, R. H. (2001) *School-wide evaluation tool*. University of Oregon: Educational and Community Supports. Available from <http://www.pbssurveys.org>
- Turnbull, A., Edmonson, H., Griggs, P., Wickham, D., Sailor, W., Freeman, R., et al. (2002). A blueprint for schoolwide positive behavior support: Implementation of three components. *Exceptional Children*, 68(3), 377–402.
- Trister-Dodge, D., Colker, L., & Heroman, C. (2002). *The creative curriculum for preschool*. Washington DC: Teaching Strategies, Inc.
- Vanderheyden, A., & Snyder, P. (2006). Integrating frameworks from early childhood intervention and school psychology to accelerate growth for all young children. *School Psychology Review*, 35(4), 519–534.
- Verbeke, G., & Molenberghs, G. (2003). The use of score tests for inference on variance components. *Biometrics*, 59, 254–262.

- Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J., Bricker, D., et al. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders, 4*(4), 194–202.
- Walker, H. M., Sevenson, H. H., & Feil, E. G. (1995). *The early screening project: A proven child-find process*. Eugene, OR: Applied Behavior Science Press.
- Walker, H. M., Stiller, B., Golly, A., Kavanagh, K., Sevenson, H. H., & Feil, E. (1997). *First step to success: Helping young children overcome antisocial behavior*. Longmont, CO: Sopris West.
- Warren, J. S., Edmonson, H. M., Griggs, P., Lassen, S., McCart, A., Turnbull, A., et al. (2003). Urban applications of school-wide positive behavior support: Critical issues and lessons learned. *Journal of Positive Behavior Interventions, 5*, 80–91.
- Yoshikawa, H., & Knitzer, J. (1997). *Lessons from the field: Head Start mental health strategies to meet changing needs*. New York: National Center for Children in Poverty.