Demonstration of Individualized Positive Behavior Support Interventions by Head Start Staff to Address Children's Challenging Behavior

Mary D. Voorhees, Virginia L. Walker, Martha E. Snell and Carol G. Smith

Published by:

$SAGE

http://www.sagepublications.com

On behalf of:
TASH

>> Version of Record - Sep 1, 2013

What is This?

A Demonstration of Individualized Positive Behavior Support Interventions by Head Start Staff to Address Children's Challenging Behavior

Mary D. Voorhees, Virginia L. Walker, Martha E. Snell, and Carol G. Smith
University of Virginia

Following the implementation of Tier 1 and Tier 2 Positive Behavior Support (PBS) strategies in six Head Start (HS) classrooms, three children in two classrooms were identified who had significant behavioral challenges and met the criteria for the use of individualized PBS. The purpose of this demonstration was to evaluate whether the effects of individualized PBS intervention implemented by HS classroom staff would have a generalized effect on inappropriate and appropriate behaviors, defined both individually for each child in a support plan and globally across three children. Following intervention with all three target children, both individually and globally defined inappropriate behavior showed decreases over baseline levels, whereas individually and globally defined appropriate behavior showed increases over baseline levels. Overall fidelity was high for implementation of prevention strategies but varied by child and classroom. Social validity ratings indicated that intervention strategies were feasible for use in classrooms and had positive effects on students and staff.

DESCRIPTORS: challenging behavior, Head Start, individualized PBS, preschool, problem behavior, Tier 3

A significant number of preschoolers (10–21%) exhibit challenging behavior such as aggression, noncompliance, defiance, tantrums, and property destruction (Powell, Fixsen, Dunlap, Smith, & Fox, 2007; Strain & Timm, 2001) with even higher percentages (30%) occurring for children living in poverty (Qi & Kaiser, 2003). Classroom staff in programs serving children who are at risk, such as Head Start (HS), report less competence in individualizing interventions for children with significant behavior challenges while indicating that training to address children's challenging behavior is a priority (Bruns & Mogharreban, 2007; Snell, Berlin, Voorhees, Stanton-Chapman, & Hadden, 2012).

Program-wide PBS (*PWPBS*) is a model for addressing problem behavior in early childhood programs with the potential to enhance staff competence for resolving children's severe and persistent behavioral challenges. The three-tiered intervention approach of PWPBS begins with universal strategies (Tier 1) that are applied to all children. Specialized strategies (Tiers 2 and 3) are added for children whose behavior does not improve following universal intervention (Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003). Third tier or individualized interventions are intense, durable, assessment-based procedures that are designed by the educational team (including family members) for individual students (Horner, Albin, Todd, Newton, & Sprague, 2010).

Third tier interventions are guided by functional behavioral assessment (FBA) with the purpose of increasing desirable behavior. FBA is a process for identifying the environmental events that predict and maintain specific problem behaviors. On the basis of an operational definition of a child's problem behavior, the FBA enables a team to (a) identify contexts that predict the occurrence and nonoccurrence of that behavior, (b) validate the problem behavior, (c) identify consequences that maintain that behavior, and (d) formulate an explanatory hypothesis. The FBA results are used to design a behavior support plan individualized to the child with components to prevent the problem behavior, teach new skills intended to replace the problem behavior (e.g., social, communication), and respond to behavior. When the focus is on teaching replacement behaviors rather than simply eliminating challenging behavior, it becomes possible to sustain the child's behavioral improvements over the long term. Positive Behavior Support (PBS) interventions with good *contextual fit* are designed by educational teams to match the values, skills, and resources of those who use the intervention. Such plans have a higher probability of being applied consistently by team members and yielding better outcomes than those with poor contextual fit (Albin, Lucyshyn, Horner, & Flannery, 1996; McLaughlin, Denney, Snyder, & Welsh, 2012; Sugai, 2012).

173

On the basis of a review of 25 studies implementing the PBS approach with young children with challenging behavior, Dunlap et al. (2006) gave a high confidence rating to the evidence supporting individualized PBS with preschool children, particularly concerning interventions based on FBA. Interviews and observation in HS programs (Snell, Voorhees, et al., 2012) found that few of these programs applied functional assessment methods or developed multicomponent support plans. Staff tended to use more traditional methods to address challenging behavior, such as (a) "fixing" the child, not the environment; (b) eliminating the problem behavior by using reactive strategies, rather than replacing it with appropriate behavior; and (c) using the same intervention for all children, rather than individualizing interventions. When children's behavior presented safety concerns many programs simply removed children from the activity, classroom, or program. Quesenberry, Hemmeter, and Ostrosky (2011) found similar policies and procedures for addressing children's challenging behavior in the HS programs they surveyed.

Researchers have demonstrated that preschool teachers can apply assessment-based individualized PBS strategies to reduce serious problem behavior and increase appropriate behavior (e.g., Duda, Dunlap, Fox, Lentini, & Clark, 2004; McLaren & Nelson, 2009). Still, classroom staff experience problems when applying function-based PBS strategies due to the complex nature of this approach (Dunlap & Fox, 2011). For example, Blair, Fox, and Lentini (2010) reported that preschool teachers were more likely to implement preventative practices with fidelity than to implement specific teaching strategies with fidelity. The emerging database on the effectiveness of individualized PBS in preschool settings holds promise, but the field needs additional research to study classroom implementation challenges.

In this demonstration, we explored four evaluation questions regarding the use of individualized interventions with children as implemented by HS staff: (a) Is the implementation of individualized PBS strategies followed by a decrease of inappropriate behavior and an increase of appropriate behavior as defined individually in children's behavior support plans? (b) Is the implementation of individualized PBS strategies followed by a decrease of behaviors identified globally as inappropriate in the preschool classroom and an increase in behaviors identified as appropriate in the classroom? (c) Can HS classroom staff implement individualized PBS strategies with fidelity? (d) How do HS staff perceive the feasibility of using individualized PBS strategies and the effects of those strategies?

Program Description

Setting and Participants

This evaluation was conducted in two preschool HS classrooms in a mid-Atlantic state. One of the classrooms was operated by the public schools and one by a community agency; both classrooms were located in public school buildings. Classroom A had 17 students (41% boys, 59% girls), the majority of whom were African American (41%), with 29% Caucasian and 6% Hispanic. Classroom B had 20 students (55% boys, 45% girls), the majority of whom were Caucasian (70%), with 10% African American and 5% Hispanic. These classrooms also participated in two prior demonstrations of Tiers 1 and 2 PBS interventions.

Both classrooms had a lead teacher and a teaching assistant. The lead teacher in classroom A was a 45-year-old Caucasian woman with 10 years of teaching experience. She had a Master's degree in Early Childhood Special Education and was certified to teach by a state education agency. The teaching assistant was a 32-year-old Caucasian woman who did not report having a degree but had 6 years of experience working in a preschool setting. The lead teacher in Classroom B was a 47-year-old African American woman with 14 years of teaching experience in a childcare or preschool setting. She had a Child Development Associate degree. The teaching assistant was a 43-year-old Bangladeshi woman with 4 years of experience working with preschoolers. She had a BA degree in a nonrelated field. One additional teaching assistant was hired midyear to assist in each of these classrooms, including implementing individualized PBS, due to the high level of children's support needs.

Children were selected to receive individualized PBS if they met two criteria: (a) a repeated pattern of behavior that caused injury to self or others, damaged the physical environment, interfered with teaching or learning, or socially isolated the child (Doss & Reichle, 1991) and (b) problem behavior that persisted after universal strategies (Tier 1) had been implemented. (Tier 1 strategies involved the whole classroom and routines different from those targeted for Tier 3, as described in [Snell et al., 2013]). Three children from two classrooms met both criteria; two of the children (Rashad and Aleisha) were in Classroom A, and one child (Ben) was in Classroom B.

Rashad was a 4-year-old African American boy who qualified for the preschool program due to his family's risk factors. His preferred activities were dancing, dramatic play, and outdoor play. His communication skills were on age level; however, he had significant delays in social-emotional skills. His scores on the *Social Skills Rating System* (SSRS-Teacher Form; Gresham & Elliott, 1990) were below the second percentile for social skills and above the 98th percentile for problem behavior. The results of the *Child Behavior Checklist* (CBCL-Teacher Form; Achenbach & Rescorla, 2000) indicated high levels of externalizing (83%) and internalizing (65%) behaviors. He frequently interacted with adults rather than peers but played with one particular peer. Classroom staff members were most concerned about his behavior during transitions, particularly the clean-up

transition following center time. The teachers typically gave a 5-minute warning prior to clean-up and then announced clean-up time by switching the lights on and off and/or verbally directing children to clean up the center where they had played. When the first child finished cleaning up, the teacher went to the rug area to begin an activity; children were expected to go to that rug once finished with cleaning and join the activity. When directed to clean up and go to the rug for a group game or activity, Rashad did not follow directions and engaged in physically disruptive or aggressive behaviors (e.g., throwing materials, hitting teachers or children, climbing or standing on book shelves or tables, leaving the room).

Aleisha was a 4-year-old biracial girl who was eligible for special education services due to moderate to significant delays in all areas of development. Her scores on the *SSRS* were below the second percentile for social skills and above the 98th percentile for problem behavior. The results of the *CBCL* indicated high levels of externalizing (89%) and internalizing (61%) behaviors. Her preferred activities included listening to music, playing with sensory materials (e.g., sand, Playdough), and engaging in solitary play (e.g., talking on a toy phone). Although she used one- or two-word phrases to communicate, her speech was often unintelligible. She received speech therapy outside the classroom for 1 hour per week. She was not toilet-trained and had frequent accidents. The staff was primarily concerned with her infrequent sitting and participating in group activities such as circle time. Circle time typically lasted 15 minutes and included singing and listening to a story. At the end of circle time, the teacher dismissed children one at a time to go to a center of their choice. Aleisha usually did not come to circle but wandered about the classroom or played with center toys. When directed to sit in circle, she would engage in off-task behaviors (e.g., touching teacher materials, moving from her designated spot in circle) and disruptive physical behavior (e.g., hitting peers, clapping her hands loudly, leaving circle).

Ben was a 3-year-old Caucasian boy who was found eligible for special education services based on a diagnosis of autism just prior to participating in this study. The autism measures used to make this diagnosis included the *Childhood Autism Rating Scale-2nd edition* (CARS-2; Schopler, Van Bourgondien, Wellman, & Love, 2010), the *Gilliam Autism Rating Scale-2nd edition* (GARS-2; Gilliam, 2006), and the *Psychoeducational Profile-3rd edition* (PEP-3; Schopler, Lansing, Reichler, & Marcus, 2004). He had significant delays in all areas of development. His scores on the *SSRS* were below the second percentile for social skills and above the 98th percentile for problem behavior. The results of the *CBCL* indicated high levels of externalizing (86%) and internalizing (81%) behaviors. His preferred activities included letters and number-based activities; he could identify many numerals and letters of the alphabet. He preferred to play alone with manipulative toys (e.g.,

Legos, Mr. Potato Head, or plastic letters). He primarily used noises or gestures to communicate, although he sometimes used words or phrases. He had high levels of inappropriate behavior. His teacher primarily was concerned about his refusal to join group activities like morning circle, which included learning time for letters, numbers, calendar, and weather and usually was excessive in length (around 25 minutes). Ben exhibited aggressive behavior (e.g., hitting, biting, spitting) when he was directed to join the circle. Ben's teacher reported that he rarely joined circle with his peers; when he did, he did not participate and left after a few minutes.

Implementing the Individualized PBS Process

The Individualized PBS Process consisted of target child selection, classroom staff training, FBA, initial coaching, and follow-up coaching. The two classrooms taking part in this Tier 3 demonstration had implemented Tiers 1 and 2 interventions in their classrooms (described in other articles: references omitted due to author identity) in the fall and early winter prior to their implementation of Tier 3 interventions (Snell et al., 2013; Stanton-Chapman et al., 2013). After the three target children were identified and baseline observations made, instruction in Tier 3 strategies was provided to classroom teams over an 8- to 11-week period. Instruction consisted of a workshop, an initial coaching session to develop an individualized PBS support plan, and two coaching sessions to support classroom staff in implementing the plan. After the workshop and prior to the initial coaching session, coaches conducted FBA for each target child. Duration of staff instruction varied due to the occurrence of spring break and a lapse in time between the workshop and initiation of the FBA. All steps of individualized PBS were followed with one exception: Due to the severity of Rashad's challenging behavior, we started his intervention 1 month before the Tier 3 instructional workshop was held. The staff from Rashad's classroom received workshop materials (e.g., a manual and handouts) and an overview of the individualized PBS support process in a classroom staff meeting prior to the initiation of his intervention. Each classroom had an assigned project coach hired by the Social Competence in Preschool (SCIP) grant. Coaches for these teams were Caucasian women, aged 40 and 58 years, and experienced teachers. One coach had a doctoral degree in special education; the other was a special education doctoral student.

When teachers judged that a child in their classroom met identified criteria for Tier 3 intervention, they completed a request for assistance form and met with the child's parents to gather information. Project coaches observed the child in the classroom and collected initial data to determine if intervention was needed. If coaches agreed that a child met criteria, additional information

was gathered prior to intervention. Baseline videotapes were made of the routine in which challenging behavior occurred most frequently. Only one tape was made for Rashad and two for Aleisha due to teacher concern about the severity of their behavior. For the previous 2 weeks, the teacher had recorded anecdotal information on the behavior of both children; her observations matched the videotaped data and indicated (a) that Rashad had been removed from the classroom an average of two to three times a week due to aggressive behavior and (b) that Aleisha had not once remained in circle for its entirety.

Staff instruction included a 2-hour workshop conducted by a project coach at both program sites. The workshop provided an overview of the individualized PBS process (e.g., FBA, designing an individualized PBS support plan). Coaches used a case example with illustrative videos from the Center on the Social Emotional Foundations for Early Learning (n.d.) to illustrate this process. Coaches also explained a six-step problem-solving process for teams to use when children met the criteria for individualized PBS: (a) identify a child who meets the criteria for Tier 3 intervention; (b) identify the ABCs (antecedents, behavior, consequences) for the problem behavior; (c) identify strategies to improve the routine to reduce problem behavior and to increase social skills; (d) develop an action plan that builds on the ABCs and uses Prevent-Teach-Respond strategies (ABC-PTR) to reduce problem behavior and increase appropriate behavior; (e) implement the plan; and (f) evaluate the plan's effectiveness and revise if needed. These steps have similarities with the Prevent-Teach-Reinforce model developed by Dunlap et al. (2010) for school-based teams but were modified and targeted for early childhood providers.

Workshop materials included PowerPoint slides and handouts, written case study materials with illustrative videos, and an *ABC-PTR Action Plan*. The action plan was a table with a row of three columns for recording the identified ABCs of the child's problem behavior and a second row of three columns to enter PTR strategies for preventing the child's problem behavior, teaching and reinforcing expected behavior and responding to the problem behavior without reinforcing it. Teams also received an *Individualized positive behavior support: Preschool classroom team manual*[1] (Snell, Voorhees & Berlin, 2010) with a detailed summary of individualized PBS steps. Additionally, online resources to assist in the selection of PTR intervention strategies, matched to the function of the challenging behavior, were shared and explained, such as the *Routine-based support guide for young children with challenging behavior* (Lentini, Vaughn, & Fox, 2004). This guide was organized by

typical preschool routines (e.g., circle, transitions). A list of strategies was provided for each routine that were appropriate to use for specific behavioral functions (e.g., escape, attention, sensory). The guide facilitated the team's selection of strategies linked to the hypothesized functions of a child's behavior.

To understand factors contributing to the child's challenging behavior, the assigned coach applied two methods to collect FBA information: (a) teacher and parent interviews using an adaptation of the Early Childhood Functional Assessment Interview (March et al., 2000, adapted with permission from Squires & Bricker, 2007) and (b) direct observation using ABC cards (Carr et al., 1994) to record information about incidences of challenging behavior (context, triggering antecedent, behavior, maintaining consequence, possible function).

Once the FBA was completed, coaches met with classroom teams to discuss the results, develop a hypothesis (with information about setting events, predicting antecedents, maintaining consequences and the function of the child's behavior), and write a behavior support plan. Coaches used segments of the baseline tapes to illustrate the ABCs for target children and to assist teams in the problem-solving process and hypothesis development. The hypotheses for the three target children's problem behavior were as follows. When *Rashad* transitions from a preferred routine (e.g., centers) to a nonpreferred routine (e.g., clean-up), he stands on or climbs furniture, hits children or adults, leaves the classroom without permission, runs down the hallway, or throws toys or materials to escape a nonpreferred activity and to gain adult attention. When *Aleisha* is directed to join a nonpreferred circle activity, she (a) leans or climbs on furniture or wanders in the classroom rather than coming to the rug area for circle or (b) after sitting on the rug, moves from her assigned spot, sits in the teacher's chair, touches or takes teacher materials, hits or pushes children in proximity, and claps hands when not part of activity to escape the circle activity and gain adult attention. When *Ben* is asked to join a nonpreferred circle activity, he hits, spits, bites, walks, or runs away from an adult, lays on the floor, knocks items off the shelf to escape the circle activity and to obtain a desired tangible (e.g., Mr. Potato Head). The problem behaviors exhibited by all three children resulted in each child escaping or avoiding the nonpreferred routine. Rashad and Aleisha also received adult attention in the form of verbal or physical redirection (e.g., physically removing Rashad from the top of the bookshelf), whereas Ben was given a desired tangible in an attempt to stop his problem behavior.

The team relied on the FBA information and the hypothesis to select strategies from the guide developed by Lentini et al. (2004) that were linked to the hypothesized functions of a child's behavior. The team then developed a written support plan with (a) antecedent strategies to prevent the challenging behavior and eliminate

---

[1] The *Individualized positive behavior support: Preschool classroom team manual* is available from the first author upon request.

setting events (if any) or reduce their effects; (b) teaching strategies to teach either a functionally equivalent communicative response or an incompatible replacement behavior; (c) consequence strategies to respond in ways to reduce the challenging behavior and reinforce and increase the replacement skill. Table 1 summarizes the behavior plan strategies that were common for all children as well as those that differed.

Several main strategies were used in Rashad's plan to increase the desirability of the clean-up routine, therefore preventing his engagement in problem behaviors. A visual cue (pictures of preferred clean-up jobs such as erasing the board, wiping tables) was used to enable him to choose a job. A visual timer was also used to encourage him to "beat the clock" by completing his job in a specified amount of time. A teaching assistant was assigned to be in proximity to him to model clean-up behavior and provide reinforcement (high fives or verbal praise) for his appropriate clean-up behavior. She also redirected his behavior, when needed, to continue cleaning to beat the clock.

Similar strategies were used with Aleisha to prevent her desire to escape the circle activity. A visual minischedule was used to show the order of the circle activities so Aleisha could see when her favorite activities occurred. Aleisha was taught that when an activity was finished she could pull the picture off and put it in a "finished" pocket. An adult remained in proximity to Aleisha to encourage and provide reinforcement for her participation in circle (e.g., singing songs, listening to the story, answering a teacher question). A cube chair was used to provide more structure for her to remain in her assigned circle space; the chair was placed in a location that did not provide an "escape route." Aleisha was taught to use a break card to indicate when she was "all done" and then was allowed to go to an alternate quiet activity in the classroom. If she remained in circle for the entire time, the teacher picked her first to choose the center where she wanted to go to play for the following center activity.

One of the main strategies used to encourage Ben to join and participate in circle was to embed a preferred activity. Because Ben loved alphabet letters, the teacher began circle each day with an alphabet letter activity. Ben was provided with a transitional object (a rubber alphabet letter) to take to circle for the activity. Ben was taught to request a break using a break card, and an alternate activity was provided for him following this request. A teaching assistant remained in proximity to reinforce Ben's appropriate behavior and to teach him to use the break card to request to leave circle rather than to engage in problem behavior to get the same outcome.

The week after developing written behavior support plans, classroom staff began implementing them. Two individualized PBS coaching sessions were provided for each target child over a 1-month period. These sessions occurred every other week after school and lasted an average of 59 minutes per site. The coach taped the intervention on the day of the coaching sessions, whereas classroom staff followed the same procedures to tape the intervention during the weeks when coaching sessions did not occur. Coaches reviewed all tapes prior to coaching sessions. During coaching meetings, the team reviewed selected video segments and discussed the effectiveness of the plans for reducing children's challenging behavior and for increasing their appropriate behavior. Coaches also addressed staff fidelity of implementation of PBS strategies; if staff judged implementation to be difficult, plans were simplified. Four weeks after the end of the intervention, the classroom team or coach made a

Table 1
Structural and Interactional Behavior Support Plan Strategies

Child	Prevent Structural strategies	Teach Interactional strategies	Respond Interactional strategies
Strategies common to all children	Use close adult proximity Use visual schedule or cues	Model with physical prompts as necessary	Reinforce or redirect verbally to appropriate behavior
Strategies specific to child			
Rashad	Give choice of preferred clean-up job Use visual timer (beat the clock)	Teach him to use visuals to choose a preferred job Provide verbal reminders	Reinforce with high fives Redirect with visual cues
Aleisha	Use a cube chair for seating Use minischedule	Teach her to request a break using break card Model use of circle minischedule	Comply with all break requests Reinforce appropriate behavior by giving her first center choice
Ben	Provide transitional object Begin circle with preferred activity Reduce time in circle and provide alternate activity	Teach him to request break and use a transitional object	Comply with all break requests Redirect using visual schedule

Table 2
Individual and Global Definitions for Target Children's Behavior

Definition	Inappropriate behavior	Appropriate behavior
Individual: Rashad	Stands on or climbs furniture (e.g., tables, chairs); hits children or adults; leaves classroom without permission; runs down hallway; throws materials (e.g., toys)	Selects preferred clean-up job, participates appropriately in clean-up and joins group when clean-up job is completed
Individual: Aleisha	Leans or climbs on furniture (e.g., shelves); leaves rug area before morning meeting; after sitting down on rug, wanders in the classroom, sits in teacher's chair; moves from assigned spot on rug; touches or takes materials (e.g., eraser, tape recorder); hits or pushes children in proximity; claps hands when not part of activity	Uses break card to request break; stays with group (seated in cube chair or standing and participating in music and movement activity); pulls picture off her schedule when circle activity is completed and puts in finished pocket, waits for teacher permission to leave circle (when teacher asks her where she wants to play)
Individual: Ben	Not with peers on rug or in designated seat during alphabet routine; hitting, spitting, biting, walking or running away from an adult, or laying on floor when adults gives direction; knocking items off shelves	Carries foam letters to circle time independently or with assistance from the TA, sits in circle during specified activity (i.e., alphabet time), uses break card with assistance to request a break or leave the circle activity (rather than walking away without permission/request).
Global	*Physical Aggression* (i.e., hitting, kicking, pulling, biting, scratching, spitting, breaking or throwing classroom objects, self-injury) *Verbal Aggression* (i.e., threats to teachers or children, teasing) *Disruptive Verbal Behavior* (i.e., yelling, screaming, talking loudly over children and teacher, interrupting teacher during directions or instruction, crying) *Disruptive Physical Behavior* (i.e., turning lights on and off after being asked not to, poking others repeatedly, taking materials from other children without asking, throwing oneself on the floor as part of a temper tantrum, running away from classroom or playground, climbing on furniture if not part of activity) *Refusing to Participate* (i.e., saying "no" to the teacher when asked to participate, ignoring teachers' requests, crossing arms in protest, glaring at teacher).	*Active Engagement*: appropriate motor or verbal behaviors that correctly corresponded to the activity or teacher instruction (e.g., raising hand to answer question or singing along with peers during music time) and (b) *Passive Engagement*: appropriate passive behavior that correctly corresponded to the activity or teacher instruction (e.g., watching, waiting, or listening).

follow-up videotape to record maintenance data for both Aleisha and Ben. Because Rashad's intervention began sooner than scheduled, his follow-up tape was made 9 weeks after the end of his intervention.

Measurement

To evaluate the impact of individualized PBS interventions, we examined child behavior by coding classroom videotapes. Child behavior (inappropriate and appropriate) was defined in two ways (individual and global). We applied these definitions to code videotapes of each child taken during baseline, intervention, and follow-up.

Individual child behavior definitions reflected the inappropriate and appropriate behaviors identified in each child's function-based support plan. *Appropriate behaviors* were those specifically targeted for each child to replace the inappropriate behaviors and, thus, were narrower than global definitions. Whenever a child was engaged in one (or more if occurring simultaneously) of the specifically identified behaviors, either inappropriate or appropriate behavior was coded. Thus, inappropriate

behaviors were mutually exclusive with appropriate behaviors. Table 2 summarizes these definitions.

Global definitions of child behavior included all behaviors identified as inappropriate or problematic and all behaviors identified as appropriate. We used global definitions to understand if implementation of individualized PBS plans reduced other behaviors identified as problematic in the preschool classroom, rather than only the specific challenging behaviors identified for each child. Global definitions for inappropriate and appropriate behavior were mutually exclusive, in that all child behavior was coded as being one or the other. Table 2 sets forth the global definitions. *Appropriate behavior* was coded during times when a child was engaged in any one of the following behaviors (or more than one if occurring simultaneously): (a) active engagement and (b) passive engagement. *Inappropriate behavior* was coded during times when the target child was engaged in any one of the following behaviors (or more than one if occurring simultaneously): (a) physical aggression, (b) verbal aggression, (c) disruptive verbal behavior, (d) disruptive physical behavior, and (e) refusing to participate.

Observation Procedures and Interobserver Agreement

Teachers were asked to identify the classroom routine during which the target child had the most frequent occurrences of challenging behavior. Either the teachers or the coaches videotaped that targeted routine in its entirety. The average routine length for Rashad and Ben was 6.8 minutes, and for Aleisha it was 8.8 minutes.

To code child behavior from videotapes using both global and individual definitions, we used the Multi-Option Observation System for Experimental Studies (MOOSES; Tapp, Wehby, & Ellis, 1995). Because global and individual definitions differed, we coded global behaviors during one viewing and individual behaviors during another viewing. A duration recording method was used with both definitions to measure the duration of each target child's inappropriate behavior and appropriate behavior across the length of the entire routine; this allowed data to be reported as a percentage of time that inappropriate and appropriate behavior occurred during a given routine. We used duration recording rather than a whole or partial interval for several reasons: (a) interval recording did not capture behavior that occurred during the coding break; (b) partial interval recording inflated the level of behavior coded, because behaviors lasting between 1 and 10 seconds during any 10-second interval were all coded for the entire interval; and (c) whole interval recording underestimated the actual behavior level.

Two research staff, both graduate students and not involved as coaches, were trained to use the MOOSES system and the behavior codes. The primary coder for all videos was a M.Ed. student in special education; the secondary coder, a doctoral student in special education, assessed interobserver agreement (IOA) with the primary coder. A criterion of at least 80% IOA was set for coding child inappropriate and appropriate behavior using the individual and global behavior definitions. To assess IOA, 30% of all tapes taken during baseline, intervention, and postintervention were randomly selected and then independently coded and scored by the primary and secondary coders. To compute IOA, we compared agreements between coders on a point-by-point basis (i.e., second-by-second comparison) by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Overall IOA for child inappropriate behavior on the individual codes averaged 99% with a range of 96% to 100%; overall IOA on the global code averaged 99% with a range of 94% to 100%; %. Overall IOA for child appropriate behavior on the individual codes averaged 99% with a range of 96% to 100%; overall IOA on the global code averaged 99% with a range of 94% to 100%.

Fidelity of Implementation

Classroom staff fidelity of implementation for the individualized behavior support plan strategies was measured across two types of intervention components. *Structural* components included changes or additions to the structure of the environment or routine (e.g., use of a cube chair, transitional object, picture schedule, proximity of adult) to prevent the problem behavior, whereas *interaction* components focused on the teacher's interactions with the child (e.g., modeling use of replacement behavior, redirection, praise). We used two methods to measure structural component fidelity: (a) duration was used to measure the length of classroom staff's adherence to intervention components expected to be implemented throughout the routine (e.g., teacher in proximity to student) and (b) frequency was used to record how often staff implemented strategies expected to be used either once or twice (e.g., teacher set visual timer) during the routine, with these data calculated as percentage of opportunity. For interaction variables, we used a partial interval method to measure the number of intervals during which the strategy was used.

A criterion of at least 80% IOA was set for the coders. To compute IOA, we compared agreements between coders on a point-by-point basis by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Overall agreement on fidelity of implementation for intervention components measured using duration coding averaged 95% (range of 92–98%) for structural components and 100% for interaction components; overall agreement on intervention components measured using frequency was 100%.

Social Validity

Following intervention, we asked lead teachers and teaching assistants in both participating classrooms to evaluate the social validity of individualized PBS intervention by completing a confidential questionnaire. The questionnaire consisted of six items with a 5-point Likert scale ranging from strongly disagree to strongly agree. Items addressed feasibility of and satisfaction with function-based support and its effects. Completed questionnaires were returned in preaddressed, stamped envelopes; a graduate student entered questionnaire data, unconnected to any identifying information, into a database.

Evaluation Procedures

A simple nonexperimental time series design (Birnbrauer, Peterson, & Solnick, 1974; Gast, 2010) independently replicated across three children was used to evaluate the presumed impact of the implementation of individualized PBS intervention on child behavior as defined globally and as defined individually in each participant's support plan. This design is limited, as any changes in target behaviors can only be "presumed to be a function of the independent variable" (Gast, 2010, p. 239); however, this design was necessary as we were constrained in regard to baseline data collection due to the teacher's concern about the severity of two children's behavior (Rashad and Aleshia). For all three children, we visually inspected the graphs of inappropriate and

appropriate child behavior, defined individually and globally, examining changes in slope and level from baseline to intervention. We also examined numeric changes in the baseline and intervention phase means.

Results

Figure 1 depicts time series graphs of the percentage of children's individually defined inappropriate and appropriate behaviors during targeted routines for baseline, intervention, and follow-up. All three children exhibited a higher level of appropriate behavior and a lower level of problem behavior during the intervention condition in comparison to the baseline condition.

Table 3 depicts the baseline and intervention phase means and the specific numerical changes for all three children's individually defined behavior. Consistent with these mean changes, visual analysis of graphed data in Figure 1 revealed that the level of inappropriate problem behavior decreased immediately upon initiation of the intervention for both Rashad and Aleisha and remained low across the intervention phase. Rashad's inappropriate behavior decreased from a baseline level of 67% to low levels throughout intervention ($M = 0.6\%$). Aleisha's inappropriate behavior change was similar with a decrease from baseline ($M = 64.1\%$) to intervention ($M = 1.2\%$). Ben's inappropriate behavior
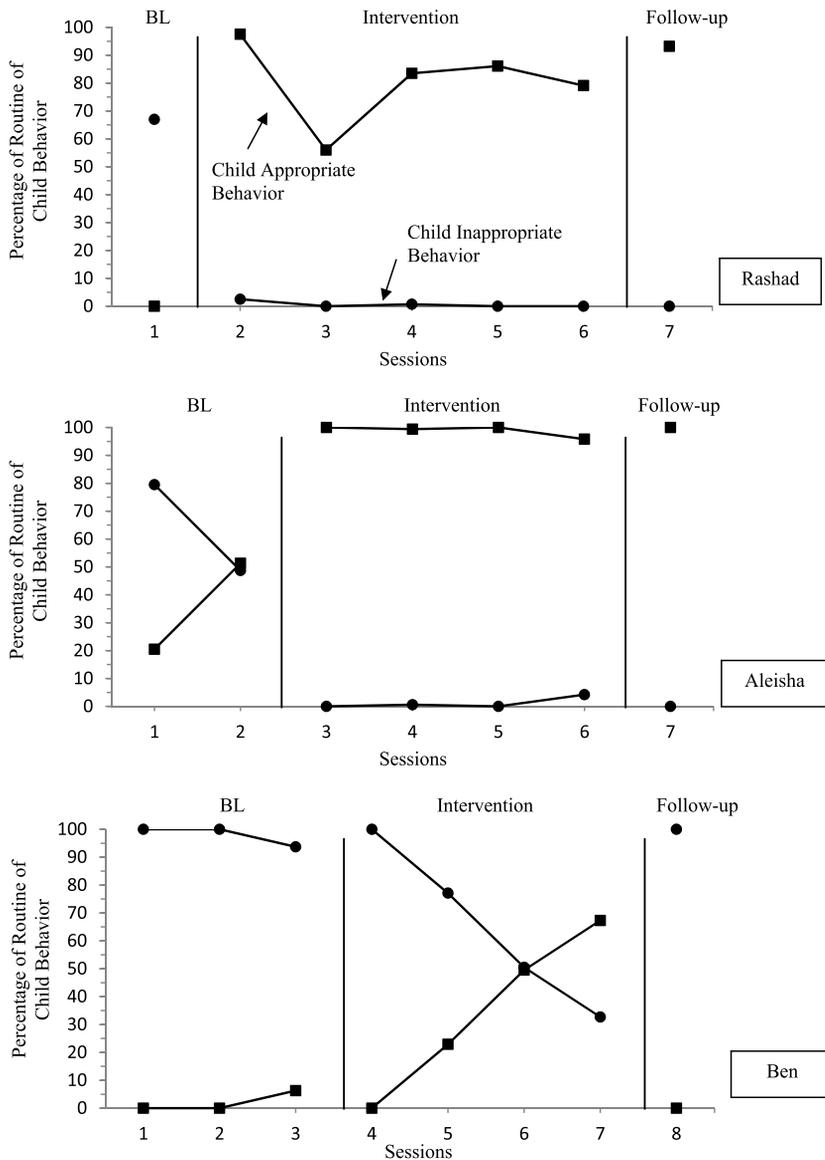

Figure 1. The percentage of time that individually defined inappropriate and appropriate behavior occurred during a given routine for Rashad, Aleisha, and Ben.

Table 3
Individual and Global Definitions of Child Appropriate and Inappropriate Behavior: Phase Means and Numerical Change

		Phase means		
Code	Participant	Baseline	Intervention	Change
Individual inappropriate	Rashad	67	0.6	66.4
	Aleisha	64.1	1.2	62.9
	Ben	97.9	65.1	32.8
Global inappropriate	Rashad	100	11.3	88.7
	Aleisha	66.5	2.4	64.1
	Ben	98.1	74.6	23.5
Individual appropriate	Rashad	0	80.4	80.4
	Aleisha	35.9	98.8	62.9
	Ben	2.1	34.9	32.8
Global appropriate	Rashad	0	88.7	88.7
	Aleisha	33.6	97.6	64
	Ben	1.9	25.4	23.5

change was more gradual but decreased from the baseline phase ($M = 97.9\%$) to a low of 32.7% during the intervention phase ($M = 66.5\%$). There were corresponding increases in all three children's individually defined appropriate behavior from baseline to and throughout the intervention phase, with a greater magnitude of change for Rashad and Aleisha. Limited follow-up data, at 4 weeks for Aleisha and Ben and at 9 weeks for Rashad, indicated that, while Ben's inappropriate and appropriate behavior returned to baseline condition levels, Rashad's and Aleisha's behavior changes were maintained. However, only correlational conclusions can be drawn from simple time series designs.

Figure 2 depicts time series graphs of the percentage of children's globally defined inappropriate and appropriate behaviors during targeted routines for baseline, intervention, and follow-up. Data for all three target children were similar to the individually defined behavior results and showed a higher level of appropriate behavior and a lower level of problem behavior during the intervention condition in comparison to the baseline condition. Table 3 presents phase means and specific numerical changes for participants' behaviors coded according to global definitions. When global definitions were applied in comparison to individual definitions, baseline levels of inappropriate behavior were higher for all three children; there was also a greater magnitude of behavior change from the baseline to the intervention phase for Rashad (88.7% vs. 66.4%), while only slightly so for Aleisha (64.1% vs. 62.9%). However, the mean level of inappropriate behavior during intervention for all three children as defined globally was not as low as when defined individually. A visual analysis of Figure 2 revealed an immediate decrease in inappropriate problem behavior for Rashad and Aleisha upon initiation of the intervention. While Rashad's behavior decreased from a baseline level of 100% to 2.3% upon initiation of the intervention, there was a slight increase in his inappropriate behavior across the intervention phase ($M = 11.3\%$). Aleisha's inappropriate behavior decreased

from a baseline mean of 66.5% to 1.2% upon intervention initiation and remained low ($M = 2.4\%$). Ben's inappropriate behavior change was more gradual but decreased from the baseline phase ($M = 98.1\%$) to a low of 34% during the intervention phase ($M = 74.6\%$). There were corresponding increases in all three children's globally defined appropriate behavior from baseline to and throughout the intervention condition, with a greater magnitude of change for Rashad and Aleisha. Limited follow-up data results were similar to the individually defined behavior data and indicate that Rashad's and Aleisha's specific behavior changes were maintained, while Ben's behavior returned to baseline condition levels. Due to the use of a time series design, only correlational conclusions can be drawn.

Fidelity of Implementation

Intervention fidelity for structural component strategies was measured in two ways. Strategies that occurred across the entire routine (e.g., proximity of an adult) were measured as the percentage of time the strategy was correctly implemented across the entire routine and were used only with Rashad and Aleisha. Teachers' mean intervention fidelity for their use was 70.4% (range, 10.7–90.6%) for Rashad's support plan strategies and 97.2% (range, 93–99%) for Aleisha's support plan strategies. Structural component strategies that occurred once or twice in the routine (e.g., giving a child a choice of a clean-up helper role) were measured as percentage of opportunities; intervention fidelity averaged 92.7% for Rashad, 100% for Aleisha, and 66% for Ben.

Teachers' intervention fidelity for interaction strategies compared the percentage of intervals in which correct strategy implementation versus incorrect strategy implementation occurred across baseline, intervention, and follow-up. The mean percentage of intervals in which HS staff reinforced appropriate behavior increased from baseline to intervention for all children: Rashad, 0% to 36%; Aleisha, 20.3% to 21.2%; and Ben, 14.7% to 30.9%. The mean percentage of intervals in which staff

correctly used redirection strategies increased from baseline to intervention for Rashad (0–22.9%) and Aleisha (33.8–35.3%), but decreased for Ben (56.4–42.7%).

A follow-up measure of staff use of strategies with all children indicated that fidelity remained high (100%) for most structural strategies with the exception of two strategies used with Rashad (proximity of adult, 66%, and use of a first-then schedule, 0%) and one strategy used with Ben (use of a transitional object, 0%). Staff use of interaction strategies (reinforcement of Rashad and redirection of Rashad, Aleisha and Ben) were maintained during follow-up.
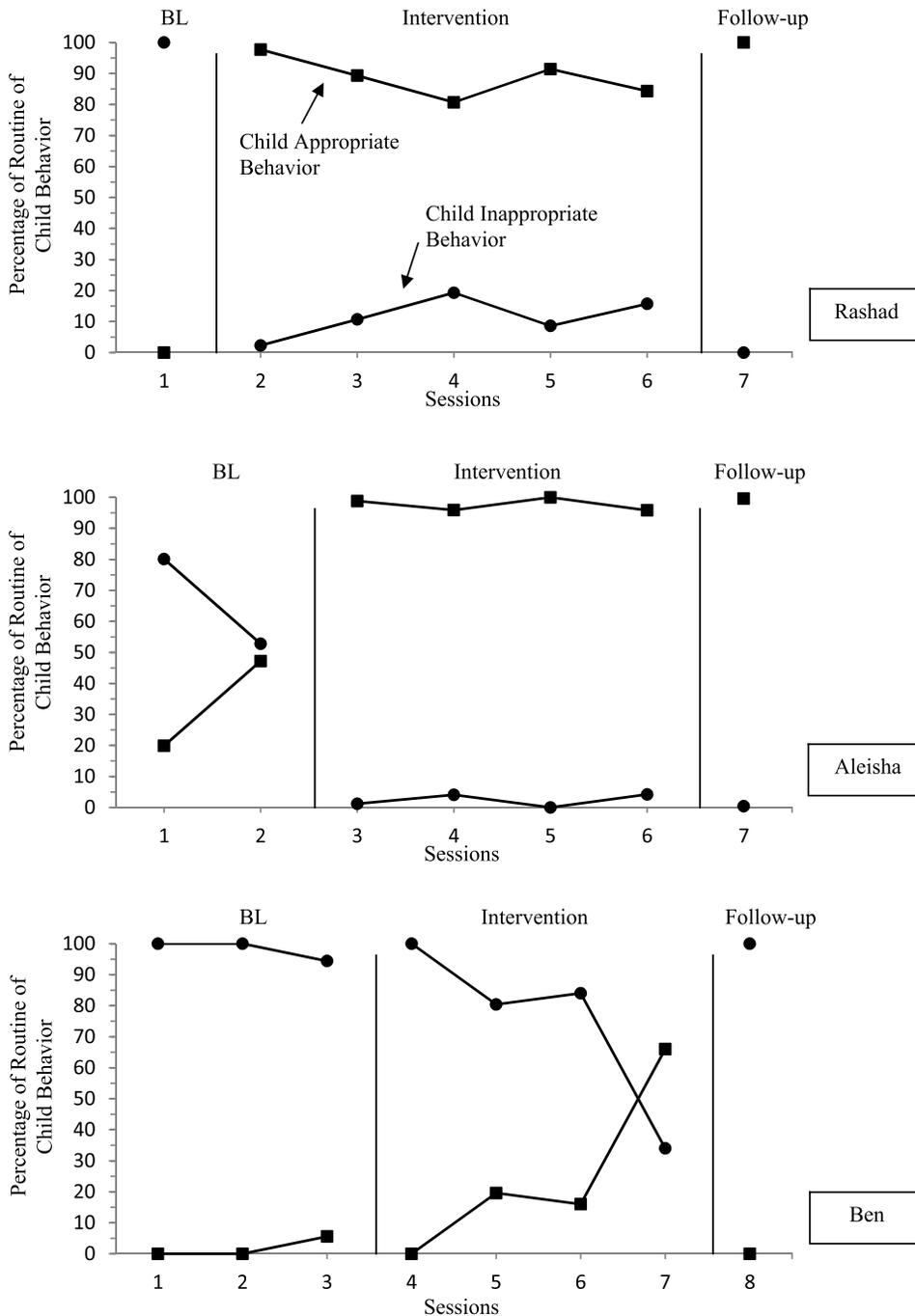

Figure 2. The percentage of time that globally defined inappropriate and appropriate behavior occurred during a given routine for Rashad, Aleisha, and Ben.

Social Validity

The teacher and teaching assistant in each participating classroom anonymously rated their agreement with two statements about the feasibility of using the individualized PBS strategies and with three statements about the effects of the strategies. Using a separate form for each target child in their classroom, they rated each item on a 5-point scale: *strongly agree*, *agree*, *neutral*, *disagree*, or *strongly disagree*. All four of the respondents either "strongly agreed" or "agreed" with the items: "the individualized PBS strategies were doable and practical" and "I am likely to continue to use the individualized PBS strategies." All four respondents "strongly agreed" with the item that the challenging behaviors selected for improvement were of concern and a high priority for the target children and either "strongly agreed" or "agreed" with the remaining two items: "the target child's behavior improved" and "I feel less stress related to the target child's behavior."

Discussion

Several notable findings from the current evaluation are relevant to the application of individualized PBS in early childhood settings. First, teacher implementation of individualized PBS support plan strategies appeared not only to reduce each child's individually defined challenging behaviors but also to reduce additional globally defined inappropriate behaviors commonly identified as problematic to preschool teachers. Regardless of definition type, children's inappropriate behavior declined during intervention, and there was a corresponding increase in appropriate global behaviors and in specific replacement behaviors included on each child's behavior support plan. Behavior change occurred for all three children regardless of whether or not they had identified disabilities or developmental delays in all areas of development (Aleisha and Ben) or whether or not they met the criteria for Tier 3 intervention based solely on social-emotional concerns (Rashad). These findings support the social validity of the intervention in terms of its efficacy across children with varying support needs. While these findings are only correlational due to the use of time series design, they are promising and warrant further experimental analysis of the effects of individualized PBS implementation on both global and individually defined behaviors. Second, the study provides evidence that preschool staff can implement individualized PBS interventions with fidelity. Sustained reductions in challenging behavior were present in the classroom with the highest rates of intervention fidelity. Third, social validity results showed that staff considered the individualized PBS strategies feasible to use and effective in addressing the children's challenging behavior, while also reporting a reduction in their stress level and a desire to continue using support plan strategies.

This demonstration contributes to the expanding database of research on effective implementation of individualized PBS interventions by preschool staff in typical classroom routines. Similar to other studies (e.g., Blair et al., 2010; Duda et al., 2004), we found that child behavior change occurred even when preschool classroom staff did not implement all of the behavior support plan strategies with high levels of fidelity. As others have found (Blair et al., 2010), fidelity of implementation was higher for structural strategies focused on prevention than for teaching and response interaction strategies. In particular, prevention strategies designed to occur less often within a routine tended to be implemented more consistently than strategies designed to occur across the entire routine. Classroom staff use of interaction strategies (such as reinforcement) increased from baseline to intervention, although at a lower rate. Future exploration using component analysis may be of value to determine which of the multicomponent intervention strategies lead to behavior change.

These findings also lend support to the value of coaching and mentoring classroom staff as they design and implement individualized support plans. Previous studies have indicated that standard methods used by preschool programs to address children's challenging behavior, such as behavior charts, token systems, and time out, primarily focus on reducing challenging behavior rather than teaching appropriate or replacement behavior and staff may not "buy-in" to using positive and individualized practices (Snell, Voorhees, et al., 2012). The current findings (a) are consistent with previous evidence (e.g., Duda et al., 2004; Raver et al., 2009) that ongoing follow-up and support appears to motivate classroom staff to apply new strategies and (b) illustrate that recommended professional development practices like guided practice, feedback, and coaching (e.g., Snyder & Wolfe, 2008) play a role in supporting classroom staff's use of individualized PBS. Still, more study is necessary to promote ongoing professional development in preschool programs on function-based interventions to integrate this approach into early childhood service systems (Dunlap & Fox, 2011).

This need for additional professional development was illustrated by the discrepancy in staff use of plan strategies that we found between the two classrooms. As would be expected, in Ben's classroom where implementation fidelity was lowest, child behavior change was not as pronounced and his behavior returned to baseline levels at follow-up. While these same classroom staff rated the support strategies as being "doable" strategies that they would continue, this did not occur. Discrepancy between teacher perception of acceptability and effectiveness and actual sustained implementation is a crucial area needing further investigation. Stahmer, Suhrheinrich, Reed, and Schreibman (2012) suggested that (a) more focused training may be required to support teachers' accurate application of strategies they judged to be important but difficult and (b) additional education about the necessity of a strategy may be

needed when teachers do not value a strategy and report it difficult to use. Teachers who are similar to those in Ben's classroom (i.e., report strategies as feasible to use but then do not implement them) may also require additional education and support to promote their buy-in and precise strategy use.

In addition, the HS staff's lack of training and experience in working with a child with severe disabilities may have contributed to less pronounced intervention outcomes for Ben. The support plan strategies (e.g., use of a break card, transitional object) were new to the staff and more time may have been necessary to build their skills in using them. Additionally, the staff reported that Ben's increase in challenging behavior during the follow-up session was potentially attributed to a disruption in his schedule from his parents being out of town.

This study had five primary limitations that should be considered when evaluating its results. First, Ben was the only child in the study who met the criteria for severe disabilities based on intellectual ability and adaptive skills. This factor should be considered when interpreting the results. Second, data were infrequently and somewhat inconsistently recorded on all three children in each phase (baseline, intervention, follow-up), thereby resulting in the third limitation that a single subject experimental design across participants could not be used. Fourth, during the baseline phase, there was a decreasing trend for Aleisha's inappropriate behavior and an increasing trend for her appropriate behavior and intervention still was initiated. Several conditions contributed to these four limitations. The current evaluation was part of a larger investigation of a three-tiered PBS approach, which took place during one school year; Tier 1 and Tier 2 interventions were scheduled to occur prior to the initiation of Tier 3 interventions, resulting in a limited time for Tier 3 implementation. Also, classroom staff expressed safety concerns regarding Rashad's behavior and worried about the level of disruption caused by Aleisha's behavior. As a result, staff requested that interventions begin before the planned baseline conditions were completed, thereby reducing the implications that can be drawn. A final limitation concerned the minimal family involvement in support planning and outcome evaluation. Family involvement was limited due to the conflict between the schedules of working parents and school staff and the demands faced by single parent families. Family involvement is a critical element in the PBS process; others have reported this same limitation (e.g., Blair et al., 2010). It is crucial that future research investigate ways to promote family involvement in this process, as families are the primary influence on children's long-term behavior.

In conclusion, these results are promising even though they warrant cautious interpretation due to the use of time series design. The findings indicate that teacher implementation of individualized PBS support plan strategies appeared not only to reduce each child's individually defined challenging behaviors but also to reduce additional globally defined inappropriate behaviors commonly identified as problematic to preschool teachers.

References

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool forms & profiles*. Burlington, VT: University of Vermont, Research Center for Children, Youth, & Families.

Albin, R. W., Lucyshyn, J. M., Horner, R. H., & Flannery, K. B. (1996). Contextual fit for behavior support plans: A model for "goodness-of-fit." In L. K. Koegel, R. L. Koegel, & G. Dunlap (Eds.), *Positive behavioral support: Including people with difficult behavior in the community* (pp. 81–98). Baltimore: Paul H. Brookes.

Birnbrauer, J. S., Peterson, C. R., & Solnick, J. V. (1974). Design and interpretation of studies of single subjects. *American Journal of Mental Deficiency*, *79*, 191–203.

Blair, K. C., Fox, L., & Lentini, R. (2010). Use of positive behavior support to address the challenging behavior of young children within a community early childhood program. *Topics in Early Childhood Special Education*, *30*, 68–79.

Bruns, D. A., & Mogharreban, C. C. (2007). The gap between beliefs and practices: Early childhood practitioners' perceptions about inclusion. *Journal of Research in Childhood Education*, *21*, 229.

Carr, R. G., Levin, L., McConnachie, G., Carlson, J. I., Kemp, D. C., & Smith, C. E. (1994). *Communication-based intervention for problem behavior*. Baltimore: Brookes.

Center on the Social Emotional Foundations for Early Learning. (n.d.). Retrieved on February 1, 2011, http://csefel.vanderbilt.edu/resources/videos.html.

Doss, S., & Reichle, J. (1991). Replacing excessive behavior with an initial communicative repertoire. In J. Reichle, J. York, & J. Sigafoos (Eds.), *Implementing augmentative and alternative communication: Strategies for learners with severe disabilities* (pp. 101–112). Baltimore: Brookes.

Duda, M. A., Dunlap, G., Fox, L., Lentini, R., & Clark, S. (2004). An experimental evaluation of positive behavior support in a community preschool program. *Topics in Early Childhood Special Education*, *24*, 143–155.

Dunlap, G., & Fox, L. (2011). Function-based interventions for children with challenging behavior. *Journal of Early Intervention*, *33*, 333–343.

Dunlap, G., Iovannone, R., Kincaid, D., Wilson, K., Christiansen, K., Strain, P., et al. (2010). *Prevent teach reinforce: The school-based model of individualized positive behavior support*. Baltimore: Brookes.

Dunlap, G., Strain, P., Fox, L., Carta, J., Conroy, M., Smith, B., et al. (2006). Prevention and intervention with young children's challenging behavior: Perspectives regarding current knowledge. *Behavior Disorders*, *32*, 29–45.

Fox, L., Dunlap, G., Hemmeter, M. L., Joseph, G. E., & Strain, P. S. (2003). The teaching pyramid: A model for supporting social competence and preventing challenging behavior in young children. *Young Children*, *58*, 48–53.

Gast, D. L. (2010). *Single subject research methodology in behavioral sciences*. New York: Routledge.

Gilliam, J. E. (2006). *Gilliam Autism Rating Scale* (2nd ed.). Austin, TX: Pro-Ed.

Gresham, F. M., & Elliott, S. N. (1990). *Social Skills Rating System Manual*. Circle Pines, MN: American Guidance Service.

Horner, R. H., Albin, R. W., Todd, A. W., Newton, J. S., & Sprague, J. R. (2010). Designing and implementing individualized positive behavior support. In M. E. Snell & F. Brown

(Eds.), *Instruction of students with severe disabilities* (7th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Lentini, R., Vaughn, B. J., & Fox, L. (2004). *Routine-based support guide for young children with challenging behavior.* Tampa, FL: University of South Florida, Early Intervention Positive Behavior Support.

March, R., Horner, R. H., Lewis-Palmer, T., Brown, D., Crone, D., Todd, A. W., et al. (2000). *Functional assessment checklist for teacher and staff (FACTS).* Eugene: Department of Educational and Community Supports, University of Oregon.

McLaren, E. M., & Nelson, C. M. (2009). Using functional behavior assessment to develop behavior interventions for students in Head Start. *Journal of Positive Behavior Interventions*, *11*, 3–21.

McLaughlin, T. W., Denney, M. K., Snyder, P. A., & Welsh, J. L. (2012). Behavior support interventions implemented by families of young children: Examination of contextual fit. *Journal of Positive Behavior Interventions*, *14*, 87–97.

Powell, D., Fixsen, D., Dunlap, G., Smith, B., & Fox, L. (2007). A synthesis of knowledge relevant to pathways of service delivery for young children with or at risk of challenging behavior. *Journal of Early Intervention*, *29*, 81–106.

Qi, C. H., & Kaiser, A. P. (2003). Behavior problems of preschool children from low-income families: Review of the literature. *Topics in Early Childhood Special Education*, *23*, 188–216.

Quesenberry, A. C., Hemmeter, M. L., & Ostrosky, M. M. (2011). Addressing challenging behaviors in Head Start: A closer look at program policies and procedures. *Special Education*, *30*, 209–220.

Raver, C. C., Jones, S. M., Li-Grining, C., Zhai, F., Metsger, M. W., & Solomon, B. (2009). Targeting children's behavior problems in preschool classrooms: A cluster-randomized controlled trial. *Journal of Counseling and Clinical Psychology*, *77*, 302–316.

Schopler, E., Lansing, M. D., Reichler, R. J., & Marcus, L. M. (2004). *Psychoeducational profile* (3rd ed.). Austin, TX: Pro-Ed.

Schopler, E., Van Bourgondien, M. E., Wellman, G. J., & Love, S. R. (2010). *Childhood Autism Rating Scale* (2nd ed.). Los Angeles, CA: Western Psychological Services.

Snell, M. E., Berlin, R. A., Voorhees, M. D., Stanton-Chapman, T. L., & Hadden, S. (2012). A survey of preschool staff concerning problem behavior and its prevention in Head Start classrooms. *Journal of Positive Behavior Interventions*, *14*, 98–107.

Snell, M. E., Voorhees, M. D., Berlin, R. A., Stanton-Chapman, T. L., Hadden, S., & McCarty, J. (2012). Use of interview and observation to clarify reported practices of Head Start staff concerning problem behavior: Implications for programs and training. *Journal of Positive Behavior Interventions*, *14*, 108–117.

Snell, M. E., Voorhees, M., & Berlin, R. (2010). *Individualized positive behavior support: Classroom team manual.* Unpublished manuscript, University of Virginia.

Snell, M. E., Voorhees, M. D., Walker, V. L., Berlin, R., Jamison, K. R., & Stanton-Chapman, T. L. (2013). A demonstration of the universal problem-solving approach to address children's inappropriate behavior in Head Start classrooms. *Topics in Early Childhood Special Education.* Advance online publication. doi: 10.1177/0271121413491836.

Snyder, P., & Wolfe, B. (2008). The big three process components of effective professional development: Needs assessment, evaluation, and follow-up. In P. Winton, J. McCollum, & C. Catlett (Eds.), *Practical approaches to early childhood professional development: Evidence, strategies, and resources* (pp. 13–51). Washington, DC: Zero to Three.

Squires, J., & Bricker, D. (2007). *An activity-based approach to developing young children's social emotional competence.* Baltimore: Brookes.

Stahmer, A., Suhrheinrich, J., Reed, S., & Schreibman, L. (2012). What works for you? Using teacher feedback to inform adapations of pivotal response training for classroom use. *Autism Research and Treatment*, *2*, 1–11.

Stanton-Chapman, T. L., Walker, V. L., & Jamison, K. R. (2013). Building social competence in preschool: The effects of a social skill intervention targeting children enrolled in Head Start. Manuscript submitted for publication.

Strain, P. S., & Timm, M. A. (2001). Remediation and prevention of aggression: An evaluation of the regional intervention program over a quarter century. *Behavioral Disorders*, *26*, 297–313.

Sugai, G. (2012). *Advances in SW PBS: Practices, systems, and outcomes.* Presented at the National Association for Positive Behavior Supports Conference, Atlanta, GA.

Tapp, J., Wehby, W., & Ellis, D. (1995). A multiple option observation system for experimental studies: MOOSES. *Behavior Research Methods*, *27*, 25–31.