ASSESSING THE EFFECTIVENESS OF INDIVIDUALIZED BEHAVIOR SUPPORT

INTERVENTIONS FOR CHILDREN WITH CHALLENGING BEHAVIOR IN EARLY CARE

AND EDUCATION SETTINGS

By

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i

ABSTRACT

The purpose of this study was to evaluate the effectiveness of individualized interventions for young children with persistent challenging behavior. Three children between the ages of 4 and 5 years participated in the study. For each child, target activities and target behaviors were identified. Multicomponent interventions were developed that addressed the functions of the challenging behaviors. Coaches and teachers implemented behavior support interventions during the course of the target activities in the classroom environment. Challenging behavior was significantly reduced for all three children after the introduction of intervention. Fidelity of implementation was also examined, and results are presented for total level of fidelity as well as fidelity by implementer (i.e., teacher or coach). Social validity was assessed using a questionnaire; all teachers reported that the intervention was effective and that they would continue to use the intervention strategies in the future. Issues of generalization and maintenance are discussed. Issues for practice and future research are presented.

To my parents, John and Julia, for instilling a belief in the power of education and providing

unwavering support on this journey

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Providing early intervention to young children with challenging behavior is a topic of national concern and poses a significant challenge to the field of early childhood education (e.g., Dunlap et al., 2006; Powell, Fixsen, Dunlap, Smith, & Fox, 2007; Qi & Kaiser, 2003; Shonkoff & Phillips, 2001). Estimates are that between 4% and 12% of young children manifest persistent challenging behavior that may put them at risk for poor academic outcomes, peer rejection, and adult mental health issues (Dunlap et al., 2006; Lavigne et al., 1996; Qi & Kaiser, 2003). Children living in poverty are at greater risk for developing early behavior problems than their higher-SES counterparts (Qi & Kaiser, 2003). Research has found that without early intervention, behavior problems intensify as children age and are linked with more severe adolescent conduct disorders, substance abuse, unemployment, criminal behavior, and psychiatric diagnoses (Campbell, Shaw, & Gilliom, 2000; Raver & Knitzer, 2002; Reid & Patterson, 1991). When young children with significant challenging behavior do not receive early intervention, their problems tend to last and require more resources over time, as they affect children's educational outcomes as well as their families, service providers, and communities (Dunlap et al., 2006).

Enrollment in center-based programs (i.e., child care, Head Start, public school pre-Kindergarten) increased between 1995 and 2005 (from 55.1% to 57.2%) (U.S.

Census Bureau, 2010). In 2010, 48.0% of children were enrolled in nursery school (4,245/8850 children) (U.S. Census Bureau, 2010). Given that increasing numbers of children are spending time in early childhood settings (Lombardi, 2003; U.S. Department of Education, 2006), these environments are a logical and efficient place to deliver interventions to children with persistent challenging behavior. That said, the pathway to delivery of center-based behavioral interventions is far from clear. Data consistently indicate that teachers are or report they are ill equipped to address the needs of children with challenging behavior (Hemmeter, Corso, & Cheatham, 2006; Hemmeter, Santos, & Ostrosky, 2008). Further complicating teachers' confidence and competence to address the needs of children with challenging behavior is the range of early childhood settings that serve young children (e.g., child care centers, Head Start, public schools) and the varying education levels, experience, qualifications, and licensure requirements for teachers in these settings. With more children exhibiting challenging behavior, more children spending more time in early childhood classrooms, and teachers consistently reporting guidance around supporting children's behavior as an ongoing training need, the case for expanding knowledge about the characteristics of effective intervention for persistent challenging behavior in early care and education environments (ECEEs) is strong.

Researchers have examined a range of practices aimed at preventing and reducing challenging behavior in ECEEs. Central to this examination is the concept of a tiered approach, which includes prevention, promotion, and intervention strategies. Tiered approaches are needed to address the diverse social, emotional, and behavioral needs of children in preschool settings (Conroy & Brown, 2004). An essential feature of these

approaches is a hierarchy of increasingly intense interventions that includes a process of identifying and assisting children needing additional intervention (Coleman, Buysse, & Neitzel, 2006; Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003). In this context, *intensity* goes beyond the standard practices of increased frequency or duration, and considers issues such as (a) the degree to which interventions are individualized and (b) how target skills are defined (VanDerHeyden & Burns, 2010). The tiers of these models follow both a public health approach to intervention and the model of positive behavior support (PBS) that has been established in K-12 environments (Horner, Sugai, Todd, & Lewis-Palmer, 2005; Walker et al., 1996; Walker & Shinn, 2002).

Universal (e.g., Benedict, Horner, & Squires, 2007; Powell, Dunlap & Fox, 2006; Smith, Lewis, & Stormont, 2011) and targeted strategies (e.g., Serna, Neilsen, Lambros, & Forness, 2000) have been demonstrated to be effective for reducing challenging behavior in many children. Universal strategies relate to promoting positive teacher-child interactions and designing classroom environments to support children's engagement and prevent challenging behavior. These practices are aimed at creating a safe, positive climate for children and reducing challenging behavior by teaching children what is expected of them and providing developmentally appropriate guidance (Hemmeter & Conroy, 2012). Universal supports also include strategies to identify and teach appropriate social behavior to all children (Stormont, Lewis, Beckner, & Johnson, 2008). Universal promotion and prevention strategies that have been used to reduce and prevent challenging behavior in preschool classrooms include: room arrangement (Powell, Dunlap, & Fox, 2006); establishing clear rules and expectations, and acknowledging appropriate behavior (Benedict, Horner, & Squires, 2007; Gable, 2004; Smith et al.,

2011; Stormont, Lewis, & Beckner, 2005), increasing predictability (Benedict et al., 2007; Massey & Wheeler, 2000; Schmit, Alpers, Raschke, & Ryndak, 2000), and offering choice (Jolivette, Wehby, Canale, & Massey, 2001).

Practices at the secondary level focus on the provision of targeted social-emotional and behavior supports. Effective strategies have included teaching children anger-management strategies, problem-solving skills, friendship skills, and how to recognize and express emotions (Domitrovich, Cortes, & Greenberg, 2007; Serna et al., 2000; Webster-Stratton & Reid, 2003; Webster-Stratton & Reid, 2004). In recent years, the effects of several social-emotional classroom programs and manualized curricula have been evaluated. Programs such as the Incredible Years (Reid, Webster-Stratton & Hammond, 2003; Webster-Stratton, Reid, & Stoolmiller, 2008), Preschool PATHS (Bierman, Domitrovich, Nix et al, 2008; Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008; Domitrovich et al., 2007; Domitrovich et al., 2004), Tools of the Mind (Diamond, Barnett, Thomas, & Munro, 2007) and Second Step (McMahon, Washburn, Felix, Yakin, & Childrey, 2000) are designed to teach social skills and emotion understanding, promote self-regulation, and decrease challenging behavior. Effects, including increased emotion regulation, social competence, emotion understanding, and social problem solving, have been shown with children in public preschool and kindergarten settings (McMahon et al., 2000; Webster-Stratton et al., 2008), and with children in Head Start classrooms (Domitrovich, Cortes, & Greenberg, 2007; Serna, Nielsen, Mattern, & Forness, 2003; Webster-Stratton et al., 2008).

Even when universal and targeted strategies (including targeted social-emotional curricula) are in place, a subset of children will have challenging behaviors that persist

4

(Fox et al., 2010; Fox et al., 2003; Hemmeter et al., 2006). Smith and Fox (2003) defined challenging behavior as "any repeated pattern of behavior, or perception of behavior, that interferes with or is at risk of interfering with optimal learning or engagement in pro-social interactions with peers and adults" (p. 5). These children might or might not have disabilities (e.g., autism, Down syndrome) or labels based on IDEA categories (e.g., emotional and behavioral disorders [EBD]). They might be delayed in one or more areas of development, but might also be typically developing. Though individual children differ from one another on a number of factors, what unifies them is that their challenging behavior is not responsive to the developmentally appropriate universal guidance and secondary strategies that are effective in supporting most children's behavior. Moreover, these children have challenging behavior that is marked in its persistence, intensity, or severity.

Children with ongoing and persistent challenging behavior require interventions that are individualized to specific situations and needs (Hemmeter et al., 2006). Successful behavior support interventions (a) are designed to address the function of the individual child's challenging behavior (Dunlap et al., 2006); (b) focus on preventing challenging behavior, (c) include teaching of alternative or replacement skills, and (d) include response strategies to ensure that challenging behavior is not maintained (Blair, Fox, & Lentini, 2010; Blair, Umbreit, & Bos, 1999; Conroy et al., 2005; Dunlap & Fox, 1999).

What Do We Know About Individualized Behavior Support Interventions for Young Children?

Several recent reviews have addressed the efficacy of individualized behavior support interventions implemented in a variety of environments (Conroy et al., 2005; Dunlap et al., 2006; Wood et al., 2009). Conroy and colleagues (2005) reviewed 73 articles published between 1984 and 2003, which included interventions delivered in various settings, such as schools, homes, residential centers, special education settings, and in the community. All studies in the review included only child participants 6 years of age or younger. The majority of studies included children ages 3 (34%), 4 (40%), or 5 (49%). Relatively few studies included children age 2 (16%) or younger. Most studies (59%) included children with disabilities. Intervention was delivered in a school setting (community school or special education classroom) in 62% of studies. Twenty-six percent of interventions were delivered in children's homes, 10% in clinical/outpatient settings, 8% in residential/inpatient settings, 3% in the community (e.g., parks, stores, restaurants), and 14% in unspecified settings. These authors found that 36% of studies used some type of function-based intervention. No information was provided on whether the reviewed studies employed experimental hypothesis testing as part of their functional assessment procedures.

Teachers implemented intervention in 42% of the studies, and researchers implemented the intervention in 37% of the studies. Family members implemented intervention in 26%, while peers were the intervention agents in 3% of studies. More than one implementer was possible in a given study. When interventionists were teachers,

parents, or peers, no information was provided on how researchers trained the interventionists.

Behavior support interventions generally have three components: (a) strategies for preventing challenging behavior, such as antecedent manipulations; (b) strategies for teaching skills that the child can use in place of the challenging behavior (i.e., alternative or replacement skills); and (c) procedures for responding to challenging behavior (i.e., consequences) (Blair, Umbreit, & Bos, 1999; Conroy et al., 2005; Dunlap & Fox, 1999). Most studies (66%) included an instructional intervention for teaching replacement skills, and 32% contained an antecedent manipulation. Forty-five percent of studies included multi-component interventions (i.e., interventions with more than one component, such as antecedent manipulation and consequence modification). The authors did not specify how many of the multi-component interventions had all three components. Only 15% of studies provided information on generalization; the authors reported only that this was "primarily across settings and participants" (p. 163). Twenty-seven percent assessed maintenance of the intervention's effects. Only 8% reported treatment fidelity measures. Twenty-six percent of articles reported social validity measures. This review did not address child outcomes or magnitude of effects.

Based on their findings, Conroy et al. (2005) cited four gaps in the extant literature. First, there is a need for a more thorough examination of interventions for children who may not yet have an identified disability but who are exhibiting ongoing challenging behavior, given the increasing number of these children. Second, they found that studies rarely reported race or SES (only 5 of 73 studies did either), contributing to a dearth of information on child participants. Third, their review did not examine whether

interventions were linked to the function of the challenging behavior beyond whether study authors reported using function-based interventions, and stressed that future reviews should do so. Finally, they identified a need for researchers to examine the components of behavioral interventions that are most effective and durable across children, settings, and behaviors (i.e., maintenance and generalization), and a need for increased reporting of data on treatment integrity (i.e., whether interventions were implemented as planned) and social validity (i.e., whether interventions were acceptable to and feasible for implementers).

Dunlap and colleagues (2006) analyzed existing evidence pertaining to prevention and intervention of young children's challenging behavior (ages birth to 5). They reviewed the relevant literature (number of studies or sources was not provided), including research data and reviews. The authors reported that all studies included preschool-age children, though some included older children as well. Summary statements were produced in three content areas: presence and impact of challenging behavior, prevention, and intervention.

Based on their synthesis of the literature on prevention and intervention for young children's challenging behavior, Dunlap et al. (2006) provided five summary statements of existing knowledge related to the development of intensive individualized interventions. Core conclusions from the existing evidence were that interventions for young children with challenging behavior should: (1) be function-based; (2) include procedures to teach replacement skills; (3) contain antecedent manipulation components; (4) have greatest impact when multiple components are implemented over time and across natural environments; and (5) involve families in planning and implementation.

They also identified directions for future research. First, meaningful impact of interventions should be examined. For example, many empirically based studies rely on caregiver report rather than on direct observation. Meaningful impact would be better measured by multi-source methods, such as direct observation plus provider report, as well as by including social validity assessments (Dunlap et al., 2006). They encouraged assessment across multiple contexts, and progress toward the ultimate goal of making interventions deliverable in real-world contexts. They asserted a need for further collaboration between relevant caregivers, as well as the importance of knowledge building and capacity sharing through teaming.

More recently, Wood and colleagues (2009) reviewed the literature on assessment-based interventions for young children with challenging behavior. This review used the five core conclusions from Dunlap et al. (2006) (i.e., summary statements 1-5, presented earlier) to evaluate studies that reported using function-based assessment intervention. The authors identified 35 studies published between 1990 and 2007 that included children 7 years or younger and used functional assessment as the basis for designing an intervention. They found that in 31% of the studies, intervention was delivered in a clinic, and 23% of studies took places in homes. The remainder (46%) took place in school settings (i.e., community schools or childcare).

All studies in the Wood et al. review reported using function-based interventions. Most studies reported hypothesis testing (27 of 35; 77%). Hypothesis testing was conducted in the natural environment in 8 of the 27 (29.6%) studies in which hypothesis testing was reported. In the remainder of the studies, the hypothesis testing was conducted in an analog environment.

Wood et al. reported that teachers implemented the interventions in 84% of studies that were conducted in school environments, and in 4 of the 19 (21%) school-based studies, procedures were implemented in a setting other than the child's classroom. No information was provided about how teachers were trained to implement the interventions, or what implementation supports they received. Antecedent manipulations were included in 57% of studies, while replacement or alternative skills were taught in 63% of studies. All 35 studies included a consequence modification. Ninety-one percent of studies were multi-component (i.e., contained more than one of the three components). The authors did not specify how many of the multi-component interventions had all three components. Family members did not participate in any of the studies in which intervention was delivered in a school environment (Wood et al., 2009). The authors indicated that maintenance data were rarely reported, and only one study collected generalization data; generalization of changes in child behavior to a non-targeted activity was examined. As part of the review, Wood et al. did not address treatment integrity or social validity. They concluded that there is a need for individually tailored function-based interventions implemented in school settings, and that teachers and parents should be more fully included in designing and implementing interventions.

Behavior Support Interventions in Early Care and Education Environments

A systematic literature review was conducted by the author of the current study to describe evaluations of behavior support plans implemented in ECEEs and to address issues not fully covered in the previous reviews. Studies were included based on the following criteria: (a) they were experimental evaluations of individualized interventions

for challenging behavior implemented in ECEEs, (b) children must have been identified as exhibiting ongoing challenging behavior, (c) at least one dependent variable was child-level data, (d) data could be examined by individual child, and (e) at least one child participant was age 6 or younger. Studies were excluded if they included evaluations of a particular curriculum or universal program (e.g., The Incredible Years) or a wraparound social services approach (e.g., one study provided food stamps, heating bill assistance, and other family services in addition to behavior consultation at school). Further, studies were excluded if they included an intervention implemented by parents at home or in another community setting. Case studies were excluded, as were any studies in which children received medication as part of the intervention. Fourteen studies were identified that met the inclusion criteria.

This review expanded on the previous reviews (Conroy et al., 2005; Dunlap et al., 2006; Wood et al., 2009) in four ways. First, this review focused specifically on interventions delivered in only ECEEs (i.e., not in the home, clinic, or other settings). No review to date had solely assessed the literature on individualized interventions for young children with challenging behavior delivered in ECEEs. Two of the previous reviews (Dunlap et al., 2006; Wood et al., 2009) included classroom-based intervention studies, but also those examining interventions delivered in homes, clinics, and residential settings. Thus, the effects of classroom-based interventions were not independently examined. Only one review provided details about the specific classroom routines and activities in which the interventions were implemented (Wood et al., 2009).

Second, this review included seven studies that were published in 2007 or later. None of the other three reviews included studies published during this period. Third, the

studies in this review were analyzed with regard to maintenance and generalization of intervention effects, which was cited as a weakness of the literature in two reviews (Conroy et al., 2005; Wood et al., 2009). Those reviews analyzed maintenance and generalization in the studies that were included, but found that those data were rarely reported. The objective of the analysis in this review was to assess whether the recommendations set forth by the authors of the previous reviews (i.e., that maintenance and generalization be reported more frequently) had been addressed in the more recent studies. In other words, did more recent studies increase reporting of maintenance and generalization data?

Third, the methods for selecting the target activities (i.e., those in which intervention was implemented) were examined. This included whether functional assessments were completed, and whether hypotheses were tested. Fourth, the intervention agent was identified in each study. In addition, details on how the intervention agent was trained were reviewed. This allowed an assessment of whether natural intervention agents (e.g., teachers) implemented interventions and, if so, how they were trained and supported to implement the intervention.

Fourth, treatment fidelity data and social validity were examined. These issues were addressed in only one of the previous reviews (Conroy et al., 2005), which described the percentage of studies that reported treatment fidelity and social validity. In Conroy et al., however, no information was provided on how fidelity or social validity were measured or what findings were reported.

Participants and settings. The 14 studies in the present review included a cross-section of participants and settings. All children were 6 years of age or younger. The

average age across all participants was 53 months, and a majority of participants were male (81.8%). Of children for whom SES was reported (39.4%), 91.7% were identified as low-income and 8.3% were described as middle class or above. About 40% of children had a reported disability. Of the participants for whom type of setting was reported (75.8%), 28% were enrolled in nonprofit child care centers, 20% were in Head Start settings, 12% in state-funded preschool programs, 8% in faith-based (i.e., private) preschools, and 4% in university-based preschools. The remaining participants (28%) were enrolled in other types of settings (e.g., family child care, half-day kindergarten for children with special needs).

In most cases, interventions were implemented by the lead classroom teacher (66.67% of interventionists). Assistant teachers (19.40%) and researchers (8.33%) also implemented behavior interventions. In one study, 2 peer trainers (5.56%) served as interventionists. There were no studies in which the researcher and teacher implemented intervention together, or in which the researcher gradually faded support until the teacher was implementing intervention independently.

Of the studies in which teachers were the interventionists, only three studies described procedures for teacher training, feedback, or coaching (Duda et al., 2004; Gibson et al., 2010; Wood et al., 2011). In the study by Duda and colleagues (2004), the authors reported that a consultant "coached and modeled individualized procedures for the classroom teacher before implementation of each session" (p. 147). The consultant did not provide any information or feedback during the session to avoid disrupting the activity. Prior to each intervention session, the consultant reviewed the strategies and asked the teacher if she had questions. Following each session, the consultant commented

on strategy use and the children's behavior during the activity, and provided reminders about strategies that had not been implemented.

In one study (Gibson et al., 2010), a consultant contacted the teacher via videoconferencing software prior to each session. The consultant told the teacher which procedures to implement. After each session, feedback consisted of (a) descriptive verbal praise for correct implementation of components; (b) corrective feedback; and (c) an opportunity for the teacher to ask questions. No information was provided about the initial training for the teacher.

In the third study (Wood et al., 2011), coaching occurred during intervention sessions when the implementer requested help with a specific intervention element or if treatment fidelity fell below 80% for two consecutive sessions. In this case, the coach sat behind the implementer and whispered the planned intervention element (Wood et al., 2011).

Design. All 14 studies used single-subject experimental designs. The type of single-subject design varied across studies. The most common design was multiple baseline; seven of the 14 studies used this design. Of the seven multiple baseline designs, five were across children (Blair et al., 2010; Blair et al., 1999; Ducharme & DiAdamo, 2005; Nahgahgwon et al., 2010; Wood et al., 2011), one was across settings (Frea et al., 2001), and one used a multiple baseline across behaviors design (Robertson et al., 2003). Six studies used withdrawal designs to assess the effectiveness of the behavior interventions. Finally, one study used an alternating treatments design to compare the relative effects of two different function-based procedures (LeGray et al., 2010).

Procedures used to identify intervention targets. In 12 of the 14 studies (all except Ducharme & DiAdamo, 2005; Robertson et al., 2003), researchers, often as part of a larger support team, performed some sort of analysis to generate a hypothesis about the function of the child's challenging behavior. In 9 studies (Blair et al., 2010; Blair et al., 1999; Boyajian et al., 2001; Duda et al., 2004; Dufrene et al., 2007; Gibson et al., 2010; LeGray et al., 2010; McLaren & Nelson, 2009; Nahgahgwon et al., 2010), interviews were conducted with teachers to gather information about the patterns of children's challenging behavior. In 2 studies (Blair et al., 2010; Dunlap & Fox, 1999), parents were included in interviews in addition to teachers. In 1 study (Wood et al., 2011), only parents were interviewed.

In 5 studies (Blair et al., 2010; Blair et al., 1999; McLaren & Nelson, 2009; Nahgahgwon et al., 2010; Wood et al., 2011), researchers observed target children and collected data on the target behaviors, as well as their antecedents and consequences (A-B-C data). In 6 studies (Blair et al., 1999; Boyajian et al., 2001; Dufrene et al., 2007; Gibson et al., 2010; LeGray et al., 2010; Umbreit, 1995), hypotheses that had been generated through interviews or direct observation (or both) were tested to provide support for the function of the behaviors.

In 2 of the 15 studies (Ducharme & DiAdamo, 2005; Frea et al., 2001) functional assessments were not conducted. In these studies, information on how the target behaviors were selected was not provided beyond the fact that they were the reported challenging behaviors.

Intervention components. The interventions in the 14 studies were analyzed to determine which of the three components were included: manipulating antecedents,

teaching replacement skills, and modifying consequences. Almost all studies (11 of 14) contained an antecedent manipulation component to prevent the challenging behavior from occurring. Nine of the 14 studies contained intervention components that could be characterized as teaching an acceptable behavior to replace the challenging behavior (Blair et al., 2010; Blair et al., 1999; Boyajian et al., 2001; Frea et al., 2001; Gibson et al., 2010; McLaren & Nelson, 2009; Nahgahgwon et al., 2010; Umbreit, 1995; Wood et al., 2011). This could mean asking for help, asking for a break, requesting a preferred item, or choosing an activity. All but one study included a consequence modification, meaning interventionists had a protocol for how to respond to the challenging behavior or taught skill. The most common of these was the provision of praise or attention contingent upon performance of the desired behavior(s), which was a component in seven studies (Blair et al., 2010; Blair et al., 1999; Boyajian et al., 2001; Ducharme & DiAdamo, 2005; Duda et al., 2004; Nahgahgwon et al., 2010; Wood et al., 2011). In four studies, a consequence other than attention was provided contingent upon the child's behavior. This was common in studies when children were taught to request an item, assistance, or a break (Boyajian et al., 2001; Frea et al., 2001; Gibson et al., 2010; Umbreit, 1995). Another consequence-modification strategy was withholding the consequence that had been identified as previously maintaining the problem behavior. This strategy was used in four studies (Dufrene et al., 2007; McLaren & Nelson, 2009; Nahgahgwon et al., 2010; Wood et al., 2011).

Studies that contained two or more components were designated as *multi-component*. Six studies included two of the three intervention components (Boyajian et al., 2001; Ducharme & DiAdamo, 2005; Duda et al., 2004; Gibson et al., 2010; LeGray et

al., 2010; Wood et al., 2011). Six studies (Blair et al., 2010; Blair et al., 1999; Frea et al., 2001; McLaren & Nelson, 2009; Nahgahgwon et al., 2010; Umbreit, 1995) implemented intervention components in all three categories.

Of the 14 studies, only five specifically stated and described the specific components used with each child (Blair et al., 2010; Duda et al., 2004; McLaren & Nelson, 2009; Nahgahgwon et al., 2010; Wood et al., 2011). For example, Wood et al. (2011) described the following strategies for a participant named Mark. Antecedent manipulations included beginning centers at a preferred activity, using visuals of each activity task, and giving a warning before the end of the preferred activity. Reinforcement was to be delivered for on-task behavior every 2 min. Access to a preferred activity (books) was provided upon nonpreferred task completion. The consequence that previously reinforced the target behavior (i.e., escape) was withheld—the task demand was maintained. The remaining studies provided information on which components were used but did not provide information on the specific strategies related to each component that were used.

Effects of behavior interventions in ECEEs. Across studies, outcomes were designated strong by the author of this review when the intervention produced desired changes in comparison to baseline levels. Change must have been observed in the level and trend of desired behavior across all phases for all participants (or settings) to be coded as strong by this reviewer. Additionally, a functional relation must have been deemed to be present. A functional relation was defined as one demonstration and two replications of the experimental effect. Eleven of 14 studies were coded as showing strong outcomes (Blair et al., 2010; Blair et al., 1999; Boyajian et al., 2001; Ducharme &

17

DiAdamo, 2005; Duda et al., 2004; Dufrene et al., 2007; Gibson et al., 2010; Nahgahgwon et al., 2010; Robertson et al., 2003; Umbreit (1995); Wood et al., 2011).

Child outcomes were designated mixed when the intervention produced change in level, and trend in the desired direction in most phases for the majority of participants. Two studies (LeGray et al., 2010; McLaren & Nelson, 2009) had mixed outcomes. The outcomes in LeGray et al. (2010), which used an alternating treatments design to compare differential reinforcement of other behavior (DRO) to differential reinforcement of alternative behavior (DRA), were coded as mixed because there was overlap in the data from each condition for one participant; it was not clear which was the superior treatment. In the case of McLaren and Nelson (2009), the reason for coding outcomes as mixed was substantial variation in the data (e.g. significant overlap between extreme baseline and intervention points). These patterns made experimental effects more difficult to assess.

The absence of a functional relation, or demonstration of changes in level and trend without sufficient replication, resulted in outcomes being coded weak. One study received a designation of weak outcomes (Frea et al., 2001) because there was only one participant and the effect was demonstrated in one setting (i.e., home living) and replicated in only one other setting (i.e., manipulatives). Thus, it fell short of the required two replications for determining a functional relation.

Generalization. Generalization was assessed in only two studies (Blair et al., 2010; Blair et al., 1999). In both of these studies, teachers were the intervention agents and probes were conducted during non-targeted routines or activities. In Blair et al. (2010), problem behavior decreased to near-zero levels during non-targeted activities for

all three children. In Blair et al. (1999), problem behavior during generalization probes mirrored the pattern shown in intervention—problem behavior was significantly reduced after the introduction of intervention in non-targeted activities.

Maintenance. Maintenance data were reported in only four of the studies (Blair et al., 2010; McLaren & Nelson, 2009; Robertson et al., 2003; Wood et al., 2011). Two studies (Robertson et al., 2003; Wood et al., 2011) demonstrated strong evidence of maintenance of child behavior change, meaning that the target behavior remained at or near levels achieved at the end of intervention when maintenance data were collected, and that this was observed in the majority of the participants or target skills. In the study by Robertson et al., maintenance data were collected daily for one week following the end of intervention. In the study by Wood et al., maintenance data were collected weekly for 3 weeks following the end of intervention. The remaining two studies demonstrated mixed results related to maintenance, meaning that the target skill remained at or near levels achieved at the end of intervention in some, but not the majority of the participants (or settings or target behaviors).

Treatment fidelity. To determine whether an intervention has an effect on behavior, researchers must (a) identify and compare the differences between experimental conditions, and (b) measure the degree to which procedures in each condition are followed (Gast, 2010). While it is valuable to assess adherence to the intervention protocol during intervention phases, it is also important to measure which, if any, components of intervention were also in place during baseline phases. When treatment fidelity data are collected across conditions, they aid in identifying the procedural differences between conditions, and thus helps determine what variables may

be responsible for observed behavior changes (Gast, 2010). Many practices recommended for addressing children's challenging behavior, particularly antecedent manipulations (e.g., visual schedules, clear behavior expectations) might be in place during baseline conditions. To be able to attribute behavior change to the intervention, it is necessary to know the active ingredients of the intervention and whether they were implemented as intended (Gast, 2010; Hulleman & Cordray, 2009).

Nine of the 14 studies reported some measure of treatment fidelity data. Four studies (Blair et al., 2010; Duda et al., 2004; Gibson et al., 2010; Nahgahgwon et al., 2010) reported fidelity data were collected across all conditions (baseline and intervention). Three studies assessed fidelity during intervention sessions only (Blair et al., 1999; McLaren & Nelson, 2009; Wood et al., 2011). In three studies, treatment fidelity data were collected, but it was unclear in which phases (i.e., whether it was within and across phases) (Boyajian et al., 2001; Dufrene et al., 2007; LeGray et al., 2011).

In six of 14 studies (Blair et al., 2010; Blair et al., 1999; Boyajian et al., 2001; Dufrene et al., 2007; Nahgahgwon et al., 2010; Wood et al., 2011), treatment fidelity data were collected using interval recording systems to document each occurrence of a planned teacher behavior. In two studies (Gibson et al., 2010; McLaren & Nelson, 2009), event recording systems were used to assess the number of observed teacher behaviors compared to the number of planned teacher behaviors throughout the observation. In two studies (Duda et al., 2004; LeGray et al., 2010), component checklists were used to assess treatment fidelity (e.g., "was the seating arrangement changed?" or "was group time within the prescribed time limits?"). Planned components for the entire session were

marked as yes or no at the end of the session. When fidelity data were reported, they were high (above 80% on average).

Treatment fidelity used in the set of 14 reviewed studies was evaluated using a 4-point scale developed by this reviewer across four categories: (a) methods of collecting fidelity data were adequately described; (b) methods included use of a manual, ongoing supervision or consultation, or coding of sessions; (c) fidelity data were collected across phases; and (d) fidelity data were collected multiple times in each phase. Four studies clearly reported methods of collecting fidelity data, and high treatment fidelity was observed across all phases (i.e., baseline and intervention) (Blair et al., 2010; Duda et al., 2004; Gibson et al., 2010; Nahgahgwon et al., 2010). Four studies (Blair et al., 1999, Duda et al., 2004, Dufrene et al., 2007, Wood et al., 2011) met some, but not all, criteria for high treatment fidelity. In all of these cases, this rating was given because fidelity data were not collected across phases (i.e., were not collected during baseline). Overall, these findings indicate that the reporting of maintenance, generalization, and treatment fidelity are increasing relative to previous reviews, but are still relatively uncommon.

Research Questions

This study adds to the literature by examining the effects of individualized function-based behavior support interventions implemented in early care and education environments by classroom staff. In addition to contributing to knowledge on the effectiveness of individualized behavior support plans, the current study was designed to address four gaps in the reviewed literature. First, detailed information is provided about the components of the behavior interventions for each target child. While most studies

identify the components that are used (i.e., antecedent manipulation, teaching replacement skills, or consequence modification), relatively few have provided detailed information about specific component strategies used with specific children. Second, few studies conducted in ECEEs have reported the procedures for training teachers to implement interventions, or described the coaching and feedback teachers received to support their implementation of intervention strategies. Third, few studies, if any, have examined or reported the extent to which teachers can implement these types of intervention strategies with coaching and support, and what happens when this support is faded. Fourth, few studies have indicated the degree to which interventionists implement interventions with fidelity across both conditions (i.e., baseline and intervention). Those that have reported these data have generally not specified whether fidelity was merely measured, or whether it was ensured at predetermined levels. In addition, treatment fidelity data often are not collected across phases. In this study, treatment fidelity data were collected across all phases. This extends the literature by: (a) providing information about what component practices may be in place during baseline conditions in different classrooms; (b) ensuring fidelity through coaching and support; and (c) addressing issues of maintenance by providing information on what teachers do after coaching support is faded.

The purpose of the studies presented in this paper was to address the following research questions:

1. When provided with training and support, to what extent do classroom staff implement individualized behavior support plans with fidelity?

2. Do individualized behavior support plans implemented by adults in the classroom effectively reduce individual children's challenging behavior during targeted activities?

　　3. When support from a coach is faded in an activity, what are the corollary effects on teacher fidelity and child challenging behavior?

CHAPTER II

METHOD

Two studies were conducted to address the primary research questions. Procedures across the two studies were similar, except where described otherwise. The primary differences in the studies were the number of participants and the research designs. In Study 1, a multiple probe design across 2 children in 2 targeted activities each was used, while in Study 2 a multiple probe design was used for 1 child across 3 activities. Experimental designs are described in more detail below.

Child Participants

Three children participated in the studies: two children in Study 1 and one in Study 2. Children were selected as participants based on their meeting the following inclusion criteria when the study began: (a) age 3 to 5 years; (b) history of consistent school attendance (i.e., at or above 80% attendance in the past month); (c) ongoing, persistent challenging behavior; and (d) exhibited challenging behavior during at least 15% of intervals of two different target classroom activities on 2 different days. Children were included without regard to disability status or the presence or absence of an IEP. Inclusion criteria related to age and attendance were confirmed by a review of teacher records. Inclusion criteria related to challenging behavior were confirmed through screening observations (described below).

To recruit children for the studies, the student researcher met with 4 program directors at local childcare programs. The student researcher described the inclusion criteria and asked the program director to identify teachers who might have children in their classrooms who met the inclusion criteria. The student researcher met with teachers to explain the purpose of the study, answer questions, and obtain informed consent. Teachers nominated 8 children who might meet inclusion criteria related to age, attendance, and challenging behavior. Consent forms were then sent home by the teacher to the nominated children's parents. Once parents returned completed consent forms to the teacher, children were observed by the student researcher to determine whether they met the criterion for level of challenging behavior. The parents of two children nominated by the teachers chose not to consent for their children to participate.

The parents of six children consented for their children to participate in the studies. Of these, three failed to meet the inclusion criteria for level of challenging behavior (i.e., they did not exhibit challenging behavior at or above 15% of intervals in at least two different activities over at least two different days). The three children who met the inclusion criterion participated in the studies. An overview of child participant characteristics is shown in Table 1. Two children, Jennie and Terrell, were participants in Study 1. James was the participant in Study 2.

Jennie (Study 1). Jennie, a Caucasian female, was 4 years, 4 months old at the beginning of the study. She did not have an individualized education plan (IEP) or a diagnosed disability. Her teachers reported challenging behavior such as "yelling, throwing herself around, bothering friends, ignoring teachers' instructions, and lashing out at friends," particularly during free play and transitions. Jennie was administered the

Battelle Developmental Inventory (BDI-2; Newborg, 2005) as part of the descriptive assessment. Her total developmental quotient score was 93 (the BDI-2 has a standard score developmental quotient mean of 100, $SD = 15$). Jennie's developmental quotient scores in each domain can are shown in Table 2.

Terrell (Study 1). Terrell, an African-American male, was 5 years, 3 months of age at enrollment in the study. He did not have an IEP. His teacher reported that he refused to join group activities, was often singing or talking during quiet moments, touched or talked to other children during group time, and touched off-limits materials. She reported that transitions and circle time were the activities in which he was most likely to exhibit challenging behavior. She was particularly concerned that he was missing "critical content due to behavior challenges." Terrell's total BDI-2 developmental quotient was 59, which is more than two standard deviations below the mean. Scores in each domain are shown in Table 2.

James (Study 2). James, a Caucasian male, was 4 years, 8 months at enrollment in the study. He had a diagnosis of autism and an IEP. In accordance with his IEP, he received 1 hour of exceptional education per week, 1 hour of speech therapy per week, and 30 min of occupational therapy per week. His teacher reported that his challenging behaviors included flapping when given a task direction, saying "no" or "not right now," and leaving the group or designated area. She stated that these challenging behaviors were most likely to occur during circle, transitions to nonpreferred activities, and small groups. James's total BDI-2 developmental quotient was 57, which is more than two standard deviations below the mean. James's scores in each BDI-2 domain are shown in Table 2.

Teacher Participants and Program Descriptions

  Teacher 1 (Study 1 – Jennie's teacher). In this center, the entire staff participated in the development, training, and intervention of Jennie's behavior support plan. One teacher was identified who would take primary responsibility for plan implementation and on whom data would be collected, because it was not feasible to collect data on all seven staff members. This teacher was a 47-year-old Caucasian female with an associate's degree in early childhood education and a Child Development Associate (CDA) credential. She had 23 years of teaching experience, all with children ages 3-5.

  Jennie attended a private childcare center full time. This center was located in a refurbished house (but was not a family day care). Thirty children were enrolled, ranging in age from 18 months to 5 years, and were all in one large mixed-age group. The program was described as inclusive, but there were no children with diagnosed disabilities enrolled at the time of the study.

  Teacher 2 (Study 1 – Terrell's teacher). Terrell's teacher was a 27-year-old African-American female with a bachelor's degree in elementary and early childhood education. She was certified in elementary education and early childhood education. She had 1 year of experience teaching children ages 3-5 and had been in her current position for 6 months. Terrell attended a community-based preschool program that served at-risk children in a surrounding public housing development and neighborhood. There were 16 children in his class, none of whom had IEPs.

Teacher 3 (Study 2 – James's teacher). The lead teacher in James's classroom was a 24-year-old Caucasian female with a bachelor's degree in English literature and elementary education. She was enrolled in a master's program for early childhood special education (ECSE) and had completed 1 year. She was also working toward certification in ECSE. She had 5 years of teaching experience, 3 of which were with children ages 3-5. She had been in her current position for 1 year. James attended an inclusive early childhood program located on a university campus. Of the nine children in the class, five—including James—had IEPs.

Coaches

Two coaches participated in the study: the student researcher and a trained graduate student. Using two coaches allowed data collection for the two children in Study 1 to occur simultaneously because their target activities took place at the same time each day but in different centers. Each teacher was assigned to a coach upon enrollment in the study. The assigned coach was responsible for in-classroom support and providing feedback to the classroom staff who participated in the study. The student researcher (Coach 1) conducted all teacher trainings (described below) during both studies.

Coach 1. Coach 1 (student researcher) was the coach in Jennie's (Study 1) and James's (Study 2) classrooms. She was a 5th-year student in an early childhood special education doctoral program. She had 7 years of experience in early childhood classrooms and 5 years of experience with coaching or teacher training. She had previously coached teachers in projects associated with a team conducting research on young children's social-emotional competence and challenging behavior (Schnitz et al., 2011).

Coach 2. Coach 2 coached in Terrell's classroom. She was a 2nd-year master's student in early childhood special education. She had 6 years experience in early childhood classrooms and 2 years experience with coaching or teacher training.

Screening Procedures for Challenging Behavior

Teachers' nominations of children who had ongoing persistent challenging behavior were confirmed through screening observations conducted by the student researcher. To help teachers nominate children, the student researcher asked them to identify children in their classroom who exhibited challenging behavior on more days than not, and whose ongoing challenging behavior either prevented the child from fully participating in daily activities or took a large amount of the teacher's time to address. Examples of challenging behavior were verbally described to teachers by the student researcher (e.g., not following directions, destroying property, verbal or physical aggression).

The student researcher conducted screening observations in all activities during which the teacher reported that the child exhibited challenging behavior. For screening observations, challenging behavior was defined according to a set of behaviors used in previous studies (Hemmeter, Snyder, Fox, & Algina, 2011; Schnitz et al., 2011) (Appendix A). Challenging behavior data were collected using handheld PDAs; occurrence of challenging behavior was coded using a 10-s partial interval system. The inclusion criterion was a minimum of 15% of observational intervals with challenging behavior in at least two different classroom activities on two different days. Screening data were collected on consecutive days until the child met criterion or for up to five

observations. If five observations were completed without the child meeting the criterion, the child was excluded for study participation. This process continued until three children who met the observational screening criteria for challenging behavior were identified.

Target Activities for Intervention

All study procedures took place during regular activities in the classrooms. For each child, teachers were asked to select the activities during which the target child was most likely to exhibit challenging behavior. These target activities were confirmed during the screening observations by the student researcher. Study procedures were conducted with the child in the context of the target activities. The actual location within the classroom or program building varied depending on the targeted activity.

Jennie (Study 1). Jennie's first target activity was transition. This was typically the transition from the playground (outside) to morning circle (inside). The behavior expectations for this activity included lining up outside at the door to come in, walking through the building, taking off her shoes and placing them in her cubby, and sitting down in the circle area. All other children were transitioning at the same time. The transition lasted approximately 10 min each day.

Jennie's second target activity was free play (centers). This occurred after the morning circle and took place in the classroom. Children were allowed to choose whichever centers they wanted, move freely around the room, and interact with one another. All children were in centers at the same time. Centers lasted approximately 45 to 60 min when they took place. Some days there were no indoor centers because the class

would return to the playground after circle. Data were not collected on days when children returned to the playground.

Terrell (Study 1). Terrell's first target activity was the transition from breakfast to morning circle. The behavior expectations for this activity included picking up his breakfast trash, putting it in the trash can, washing his hands, walking to the circle area, and sitting on his spot. All other children were transitioning at the same general time, but were transitioned individually depending on when they finished breakfast and whether they needed to use the restroom. This transition lasted 5-10 min.

Terrell's second activity was morning circle, which took place directly after transition. This activity was primarily teacher directed and children were expected to sit and remain sitting in one designated "spot" throughout circle, unless prompted by the teacher to move. Circle included songs, literacy activities, discussion, book reading, or math activities. All children were in circle at the same time, but interaction was not allowed. Prior to intervention, circle lasted up to 45 min each day.

James (Study 2). James's first target activity was transition (i.e., from free play to circle). The behavior expectations for this activity involved putting his toys away, walking to the carpet, and sitting on his spot. All children were transitioning at the same time. This transition lasted 3-5 min.

James's second target activity was circle. This directly followed the transition from free play and was teacher directed with a high level of child involvement. It involved checking attendance, greeting friends, reviewing classroom rules, checking the weather, song and dance, and "mail carrier" (a literacy activity). Children were expected to sit and remain sitting in one designated "spot" throughout circle, unless prompted by

the teacher to move, and to engage appropriately in the activity. All children were in circle at the same time. This lasted about 20 minutes.

James's third target activity was small groups, which occurred after circle. All children were in small groups at the same time and were divided into three groups. Children were assigned to groups and they rotated through the activities as directed by teachers. The type of small-group activities differed day to day, but usually took place at tables or on the carpet and involved manipulatives, art, or sensory experiences (e.g., a gluing activity at the table or playing in the sand table). The behavior expectations for this activity were to go to the assigned small group, engage appropriately in the activity, and move to the next group when directed by a teacher. Children stayed in each group for 10 min, so small group time lasted a total of about 30 min.

Materials

Child intervention. No special materials were used as part of implementing the intervention. The materials used were those available and typically used in the classroom during the target activities. James's classroom had a circle time schedule made of Boardmaker® images secured to a piece of laminated paper using velcro. This was used in intervention but was already present in the classroom and not made by the coach.

Data collection. Data collection materials included the Teaching Pyramid Observation Tool (TPOT; Hemmeter, Fox, Snyder, 2009), writing instruments, handheld computers (PDAs) and procedural fidelity checklists.

Response Definitions and Measurement Systems

      Teaching Pyramid Observation Tool (TPOT). Before and after intervention,

the TPOT (Hemmeter, Fox, & Snyder, 2009) was completed to describe the classroom

and promotion and prevention strategies teachers were observed to use. This version of

the TPOT is a 38-item observational tool designed to measure fidelity of implementation

of Teaching Pyramid model practices. Each of the 38 items is associated with key

categories of practice (e.g., teaching children behavior expectations) and contains

specific, observable indicators associated with that item (e.g., posted behavior

expectations are reviewed during large-group activities). The intended purpose of the

TPOT is to assess the extent to which teachers are implementing practices associated

with each of four levels of the Teaching Pyramid model (i.e., high quality environments,

nurturing and responsive relationships, targeted social-emotional supports, individualized

supports). The TPOT is completed following an observation in the preschool classroom

and a brief interview with the teacher. Observations in the present study lasted

approximately 1.5-2 hours and included observations of both structured (circle time) and

unstructured (free choice) classroom activities. Each observation was followed by a 15-

20 min interview. The TPOT includes three types of items: (a) items that require a yes/no

for each indicator associated with each item based on observation (27 items), (b) items

that require a yes/no response for each indicator associated with each item based on

observation and an interview (4 items), and (c) items that require a yes/no response for

each indicator associated with each item based only on an interview (7 items). An overall

TPOT score represents the percent of indicators for which a teacher scores *yes*. Sixteen

"red flags" are also given a yes/no response based on observation. In addition, a subset of

39 TPOT indicators (from 14 items) was identified by the student researcher that represented universal preventive practices in early childhood classrooms. These items were selected based on their relationship to the prevention of challenging behavior (e.g., structured transitions, individualized instructions for children who need support, teaching rules, promoting children's engagement, providing clear directions). This was done so that practices most closely associated with the prevention of challenging behavior could be assessed prior to implementing more intensive supports for individual children. These items were examined in addition to the overall TPOT score.

Battelle Developmental Inventory. A trained graduate student completed the Battelle Developmental Inventory, Second Edition (BDI-2) (Newborg, 2005) with each consented child. The BDI-2 is a standardized, individually administered assessment of key developmental skills for children from birth through 7 years of age. It involves direct observation of the child and interactions in which the child is asked to perform standardized tasks with a standard set of materials. Supplemental information can also be obtained through interviews with parents or caregivers. The child's performance is scored based on standardized criteria using a three-point scoring system. According to the test developers, the test-retest score reliability coefficient for 4 year olds on the BDI-2 is .94, indicating stability of developmental quotients (DQs) over time. Inter-rater score reliability is .97-.99 (Newborg, 2005). This descriptive measure provides information about the child's functioning (i.e., developmental quotients) in five domains: (a) adaptive; (b) personal-social; (c) communication; (d) motor; and (e) cognitive. An overall standard score (total developmental quotient) is provided (normative $M = 100$, $SD = 15$).

Dependent measures. The dependent measure was the percent of intervals in which challenging behavior occurred in each session. Challenging behaviors were defined for each child in each of their target activities. These are shown in Table 3 and described below.

Jennie (Study 1). Jennie's target activities and target behaviors are shown in Table 3. Her first target activity was transitions, defined for this study as the transition from morning free-play time (centers) to circle. Most often, this was the transition from outdoor free play on the playground inside to circle. When data collection began, the weather was warmer and the teachers had replaced indoor free play time with outdoor free play time. Thus, the transition from free play to circle was the transition from the playground into the building. The expectations for this activity included lining up outside at the door to come in, walking through the building, taking off her shoes and placing them in her cubby, and sitting down in the circle area.

The target behaviors within this activity were *physical resistance* (e.g., refusing to walk if a teacher guided her with a hand on her back), *verbal resistance* (e.g., Jennie replied "No! I won't do it!"), *aggression* (e.g., physical or verbal, toward an adult or a peer during the transition), *tantrum behavior*, and *not following directions* (including ignoring the teacher, not lining up, or going to do something other than the direction given).

Jennie's second target activity was morning free-play time. Because Jennie's challenging behavior was related to interactions with other children, data were only collected during free play when Jennie was involved in social or interactive activities within free play or other children were within arm's reach of Jennie. Playing with other

children in the home living center, playing a game, doing a puzzle with another child or children, and building with blocks with or near another child or children were all examples of social/interactive play. Behavior was not coded if Jennie was painting alone at the easel, engaged in a solitary project at the table, or otherwise not playing with or near other children.

The target behaviors for this activity were *physical aggression* (e.g., toward a peer or adult, including grabbing items from another or holding items out of reach), *verbal aggression* (e.g., taunting, teasing, yelling, or resistance), physically *forcing a child to do something* (e.g., forcefully putting a costume on a peer, forcefully moving a child to another location), and *tantrum behavior* (e.g., falling on the floor, screaming).

Terrell (Study 1). Terrell's target activities and behaviors can be seen in Table 3. The first target activity was identified as the transition from breakfast to the first morning large group time. The behavior expectations included throwing away trash from breakfast, washing hands, and walking to the carpet, and sitting on his spot as directed. When the teacher began the large group activity, the transition ended.

The target behaviors for this activity were *not following directions* when given a transition task direction (e.g., throw away your breakfast, go wash your hands, walk to the circle area, and sit on your spot), *physical aggression* toward peers or adults (e.g., hitting, kicking, throwing furniture), and *verbal resistance or aggression* (e.g., saying "no!," elopement).

The second target activity identified for Terrell was the first morning circle time. Circle occurred directly after the transition that was the first target activity. This circle time was defined as the large-group teacher directed time that began when the teacher

started circle and ended when the children were dismissed to center time. This activity was largely teacher directed and children were expected to stay on one "spot" unless directed to move. It included songs, literacy activities, discussion, book reading, or math activities. All children were in circle at the same time, but interaction was not allowed. The behavior expectations were that all children would sit on their spots and engage appropriately in the teacher-led circle, without talking to or touching other children. Target behaviors were as follows: *physical aggression* (e.g., grabbing, punching, flicking)*, touching or talking to another child* during group time*, touching off-limits materials, verbal resistance or aggression,* including teasing, taunting, yelling, swearing, or name-calling (e.g., "you're ugly!") *screaming or yelling,* and *leaving the group area.*

James (Study 2). James had three identified target activities. His target activities and behaviors are shown in Table 3. The first was transitions, which was defined as the transition from morning free play (a preferred activity) to circle (a nonpreferred activity). The transition included cleaning up. The behavior expectations were putting the toys away, walking to the carpet, and sitting on his spot. James's target behaviors during the transition were *not following directions* (e.g., ignoring, doing something else, or dawdling), *verbal resistance* (e.g., saying "no" when given a direction), and *tantrum behavior* (e.g., falling on the floor, screaming).

James's second target activity was morning circle, which directly followed the transition described earlier. The behavior expectations were to sit on his spot and engage appropriately in circle, without talking to or touching other children. The target behaviors were *noncompliance* (e.g., not coming to circle, lying down during circle, leaving the

37

circle area), *verbal resistance* (e.g., saying "no" when given a direction), and *tantrum behavior* (e.g., falling on the floor, screaming).

The third target activity was small groups, which took place after morning circle. Children were assigned to one of three small group stations and rotated through the three stations as the teacher directed. The behavior expectations for this activity were to go to the assigned small group, engage appropriately in the activity, and move to the next group when directed by a teacher. The target behaviors were *noncompliance* (e.g., leaving or not being in small groups), *verbal resistance* (e.g., saying "no" when given a direction), and *tantrum behavior*.

Target challenging behaviors were measured using a 10-s partial interval system. Data were collected live in the classroom during all sessions in all phases using researcher-created measures. The student researcher and other trained observers collected the data. Observers recorded data on portable handheld devices. Observations lasted for the duration of each target activity. Data for each activity were collected in separate data files on the PDAs. The number of intervals in which challenging behavior occurred were summed, divided by the total number of intervals observed (i.e., the duration of the activity), and multiplied by 100 to obtain a percentage of intervals with challenging behavior.

Interobserver Agreement

Graduate students familiar with study procedures collected interobserver agreement (IOA) data during at least 20% of each child's sessions in each condition (e.g., baseline and intervention). The students were trained during practice sessions prior to

baseline data collection. This consisted of a training session and at least three live observations of a child's behavior in a classroom at or above 80% agreement with the student researcher or other trained observer. Interobserver agreement was calculated using a point-by-point formula and the PDA software. The number of agreements for challenging behavior was divided by agreements plus disagreements (A/A+D) and multiplied by 100 to determine percentage agreement.

Experimental Design

Study 1. A multiple probe design across activities was used to evaluate the effectiveness of individualized behavior support plans. Experimental control was demonstrated through the staggered introduction of the independent variable across different activities and different children, with immediate changes in behavior only after introduction of the independent variable (Gast & Ledford, 2010). These changes were replicated across children (see Figure 1 for a graphic of this design).

Study 2. A multiple probe design across activities was used to evaluate the effectiveness of an individualized behavior support plan for one child. Experimental control was demonstrated through the staggered introduction of the independent variable across three different activities, with immediate changes in behavior only after introduction of the independent variable (Gast, 2010). The effect was demonstrated in one activity and replicated in two additional activities.

Intervention Procedures

Procedures were identical across the two studies unless otherwise indicated. After consent was obtained for each teacher and target child and the screening observation was completed, the student researcher observed the classrooms using the TPOT (Hemmeter, Fox, & Snyder, 2009). A trained graduate student completed the BDI-2 (Newborg, 2005) with each target child.

Functional assessment. Prior to baseline data collection, the student researcher conducted a functional behavior assessment (FBA) that included three components: (a) an interview with the teacher; (b) direct observation, including the collection of antecedent-behavior-consequence (A-B-C) data; and (c) hypothesis development and hypothesis testing. Following a semi-structured interview process (adapted from Dunlap et al., 2010), the researcher and teacher identified the target child's challenging behavior(s) and the target activities during which the target child was most likely to exhibit challenging behavior(s). Specifically, information was collected on: (a) times of day that challenging behavior was most and least likely to occur; (b) activities during which challenging behavior was most and least likely to occur; (c) specific activities when cooperative and prosocial behavior was likely to occur; (d) specific children or adults whose proximity was associated with high and low likelihood of challenging behavior; (e) conditions of the physical environment related to challenging behavior; and (f) circumstances unrelated to the school setting that might make challenging behavior more likely.

During the interview, the teacher and student researcher discussed possible functions of the challenging behavior(s) including whether the child was trying to: (a)

gain attention from peers; (b) gain attention from adults; (c) obtain objects; (d) delay a transition; (e) terminate or delay a nonpreferred activity; or (f) escape a nonpreferred peer or adult. The student researcher also asked if there were specific social skills, problem-solving skills, or communicative skills that would replace the challenging behavior by serving the same function. Finally, the teacher and researcher discussed the consequences that usually follow the child's challenging behavior. The student researcher also hypothesized what was maintaining the behavior (e.g., praise, attention, tangibles).

After the interview was completed, the student researcher and trained graduate students observed the child directly to supplement information from the interview. These observations lasted approximately 1.5 hours on at least two different days. During the observation, researchers noted on an A-B-C data form: (a) what happened before each instance of challenging behavior; (b) a description of each instance of challenging behavior; and (c) what happened after each instance of challenging behavior.

Hypothesis testing. After the functional assessment interview and A-B-C data collection, the student researcher and trained observers met to discuss and analyze patterns in the data. The teacher was not present for this meeting. Using these data, hypotheses were generated for each activity targeted for intervention. These included the hypothesized function of the challenging behavior, as well as factors that maintained the child's challenging behavior. After hypotheses were generated, the research team drafted behavior support strategies (shown in Tables 4-7) that they deemed likely to decrease challenging behavior by addressing the identified function. All of these strategies were implemented by the student researcher and withdrawn (in an A-B-A-B format) in each of the target activities for each child. During A conditions, the coach and an observer were

41

present in the classroom, but did not interact with the target child or implement any of the behavior support strategies. During B conditions, the coach implemented the behavior support strategies while the observer collected data. Data on the child's challenging behavior (i.e., percent of intervals) were collected in one session in each condition for a minimum of two withdrawals until a stable pattern was established in each activity.

Behavior support intervention development. After hypothesis testing but prior to baseline, the researcher and teacher met briefly to discuss the plan and explain the next steps (i.e., baseline, training, and intervention). The researcher and teacher discussed the results from the hypothesis testing of the behavior support intervention plan. Teachers were asked if the plan seemed acceptable and feasible to them, and they had an opportunity to offer suggestions or changes to the plan. The strategies that were used during hypothesis testing were presented to the teacher using the Prevent-Teach-Reinforce format (Dunlap et al., 2009) to represent the components of a behavior support intervention: antecedent manipulations, replacement skills, and consequences. Behavior support intervention plans included strategies for at least two components (antecedent manipulation and consequence modification; see Tables 4-9). In this study, no children were systematically taught replacement behaviors as part of the behavior support plans, because researchers did not identify any clear skill deficits that were preventing target children from being able to meet the behavior expectations in each activity. The student researcher and the teacher discussed the steps that needed to be taken to prepare each element of the behavior support intervention (e.g., making a visual schedule, moving furniture, purchasing a timer). The development of the behavior support interventions for each child and all target activities took place prior to baseline so that fidelity data could

be taken on the specific intervention components during baseline. The teachers were instructed not to use the strategies until after baseline data were collected.

Baseline. Following intervention development but prior to training of teachers, baseline data were collected for a minimum of three sessions or until data were stable or demonstrated a trend in a nontherapeutic direction. During baseline probes, observers collected data on the target child's challenging behavior during the targeted activities. Neither the coach nor other observers implemented any behavior support plan components during baseline. Baseline data collection took place during the target activity for the duration of the activity. Teachers were instructed not to implement any intervention plan components during baseline.

Study 1. Baseline data collection was concurrent for Jennie and Terrell. Baseline data for Jennie were collected continuously in her first activity until data were stable or demonstrated a trend in a nontherapeutic direction. For Terrell's two activities and Jennie's second activity, baseline probes were conducted at least once a week and then for three consecutive days prior to starting intervention. While intervention was occurring for Jennie's first activity, baseline probe data were collected on Terrell's two activities and Jennie's second activity. Probe data collection occurred at least once per week and in three consecutive observations before phase changes. Intervention for Jennie occurred only after stable baseline data were observed for her. Intervention for Terrell's first activity began only after Jennie's behavior in her first activity reached the criterion described above (i.e., stable with regard to level, or demonstrate a therapeutic trend; minimum of five data points) and there were stable baseline data for Terrell's first activity. This pattern was repeated for Jennie's and Terrell's second target activities.

Study 2. Baseline data collection for James began concurrently for all three activities. Baseline data in the first activity were collected continuously until data were stable and a minimum of five points was reached. Baseline probe data were collected in the other two activities at least once per week and for three consecutive sessions prior to beginning intervention. While intervention was occurring in the first activity, baseline data collection continued in the subsequent activities. Intervention in the second activity began only after data in the first activity were stable with regard to level or showed a countertherapeutic trend, a minimum of five data points had been collected, and there were stable baseline data in the second activity. This pattern was repeated for James's third activity.

Training. After baseline, each teacher participated in a short training session (about 30 min) led by the student researcher. The goals of the teacher training session were to explain the functional behavior assessment results, to share data from hypothesis testing, and introduce preliminary intervention plans. This was done using a PowerPoint® presentation tailored to each teacher and child. The PowerPoint® was presented on a laptop computer, and a printed copy of the slides was given to each teacher.

The training focused on the strategies in the behavior support intervention for the target activity in which intervention was about to begin. Each training consisted of a PowerPoint® presentation, an overview of data from preliminary observations, and examples of strategies. As needed, teachers and the student researcher also used modeling, role play, feedback, and problem-solving conversation in the training. These

trainings were based on other trainings that have been used by a research team in previous studies (Artman & Hemmeter, 2011; Schnitz et al., 2011).

Intervention phase. During this experimental phase, the coach coached the teacher on implementing the strategies from the behavior support intervention for the target activity. Initially, the coach implemented the majority of intervention components to ensure that the intervention was being implemented with high fidelity. Teachers were encouraged to implement intervention components on their own, but the coaches stated that they would implement them if teachers did not. After child behavior data showed a stable pattern (e.g., consistently low or consistently less variable), the coach told the teacher that the coach would begin assisting the teacher in implementing the strategies directly and fading out the coach's implementation. This fading was not planned at the outset of the study, but was implemented after discussion between the researcher and her faculty advisor because Jennie's teacher was not implementing the intervention at high levels during transitions. Fading was implemented if (a) the child's challenging behavior was low and relatively stable and (b) there were at least three consecutive sessions in which the coach implemented more components than the teacher did. This process was repeated for Terrell's teacher in transitions. Fading did not take place in Jennie's centers because intervention was not implemented, and did not take place in Terrell's circle because data collection ended abruptly due to Terrell being withdrawn from the program.

Prior to each intervention session during the entire phase, the coach provided brief feedback to the teacher on the intervention strategies she implemented in the previous session. This included positive feedback (i.e., strategies the teacher implemented fully and well, if any); corrective feedback, including examples to try; graphs showing the

target child's challenging behavior; a plan for the next session; and an encouraging closing. James's teacher was an exception to this pattern because she began implementing intervention strategies immediately after the introduction of intervention in each activity, but the other teachers did not do so consistently. Coach support for James's teacher was not faded because teacher implementation was high (and coach implementation was low) for the entire condition. In each of her feedback sessions, the entire protocol for providing feedback (i.e., positive feedback, corrective feedback including examples to try, graphs showing the target child's challenging behavior, a plan for the next session, and an encouraging closing) was followed.

Data were collected on the same target behaviors as during baseline and following the same data collection procedures used during baseline probes. Data collection continued for a minimum of five sessions or until data were stable and nonvariable with regard to level, or demonstrated a therapeutic trend.

Treatment Fidelity

Fidelity of teacher training. For each training conducted by the student researcher, data on adherence to the training protocol were collected on a training fidelity form (Appendix A). These fidelity data were collected by the student researcher in all three trainings. An additional independent observer also completed this form in Terrell's teacher's training (i.e., one of the three trainings).

Fidelity of feedback. Following each intervention session, but prior to the next session, the coach met with teachers to deliver feedback on their implementation of intervention components. This took place during the entire condition for all teachers. This

included positive feedback (i.e., strategies the teacher implemented fully and well, if any), corrective feedback including examples, a plan for the next session, and an encouraging closing. Adherence to this feedback protocol was tracked on a feedback fidelity sheet by the coach in every session (Appendix B). No additional observers completed this fidelity sheet.

Fidelity of intervention implementation. Treatment fidelity data were collected by the student researcher (in the classroom in which she was not a coach) or trained observers during every session in all phases. In addition, a second observer collected fidelity data on at least 20% of sessions in all conditions to independently assess treatment fidelity. Treatment fidelity was calculated using the following formula: number of actual occurrences of behavior support strategies divided by the number of planned occurrences multiplied by 100.

The items on the treatment fidelity form varied across children based on the specific intervention components identified for each child. All checklists measured fidelity in two ways. First, some checklist items measured strategies from the behavior support plan that would happen only once per session (e.g., child is given an individualized transition warning, child is shown his visual choice board for small groups). Observers indicated (a) whether the strategy happened and (b) who implemented it (i.e., teacher or coach). Second, some items pertained to strategies that would be expected to occur more than once during a session (e.g., delivering positive descriptive praise). These items had a predetermined threshold. For example, if the strategy was to deliver positive, descriptive praise for the child transitioning smoothly, the item specified

that three examples needed to be seen in order to mark the item *yes*. Treatment fidelity

forms for each child are in Appendices C-E.

For both types of items, observers indicated (a) whether the strategy happened

(i.e., marked a √ if it did, and *0* if it did not) and (b) who implemented it (i.e., teacher or

coach). These checklists and thresholds were based on checklists used in another study by

a research team (Schnitz et al., 2011). In addition, the observers used a Data Collection

Summary form (Appendix F) to note whether there was anything unusual about the

observation (e.g., the child was not feeling well or the session occurred directly after a

fire drill).

Social Validity

Information on teachers' perceptions of intervention strategies were assessed

using a social validity questionnaire (Appendix G), developed by the student researcher

and delivered to teachers upon the completion of intervention. The questionnaire had two

types of questions: those rated on a four-point scale (1 = strongly disagree; 2 = disagree;

3 = agree; 4 = strongly agree), and open-ended questions. For the rating scale questions,

teachers were asked to rate: (a) the ease of using the strategies; (b) the effectiveness of

the strategies; (c) whether they would recommend the strategies to another teacher; (d)

the unobtrusiveness of the observers in the classroom; and (e) the helpfulness of the

coach's feedback. The open-ended questions were used to collect teachers' opinions on

the benefits of and barriers to using the intervention strategies, as well as whether they

think they will continue to use the strategies in the future.

CHAPTER III

RESULTS

In this chapter, results are presented. First, Teaching Pyramid Observation Tool (TPOT; Hemmeter et al. 2009) scores pre- and post-intervention are reported for each classroom (i.e., two classrooms in Study 1 and one classroom in Study 2). Second, results from each of the two studies are presented. For each study, the functional assessment and hypothesis testing data for each child are presented first. Next, treatment fidelity data are presented overall as well as by interventionist (i.e., coach or teacher). Interobserver agreement data are presented for dependent measures. Then, the effects of the intervention on each child's challenging behavior are shown for each of the target activities in each of the two studies. Finally, social validity results are presented for both studies combined.

Teaching Pyramid Observation Tool

Table 10 shows TPOT scores for each classroom pre- and post-intervention. The total score represents the percentage of indicators that were present. The data are shown as a percentage of indicators because the total number of indicators can vary depending on the response to one of the items (i.e., "Was problem behavior observed during the observation?"). If challenging behavior was observed and this item was marked *yes,* observers were instructed to score all of the indicators associated with that item. When this occurred, the total number of possible indicators on the TPOT is 118. If challenging behavior did not occur during the observation and the item was marked *no,* observers

were instructed to answer only indicator 5.1, but not the remainder of the indicators in the challenging behavior item. In this event, the total number of possible TPOT indicators is 109. *Preventive practices* represents a subset of 39 TPOT indicators selected for the present study that relate to classroom practices aimed at preventing challenging behavior. For both of these sets of items, higher scores represent more practices in place. The number of red flags (out of 16) is also shown. Red flags are scored negatively, so lower scores indicate fewer red flags.

Interobserver agreement. IOA data were collected by a second observer for one of the three TPOT pre-intervention sessions (33%); IOA was 92.2%. Post-intervention TPOT IOA data were scheduled to be collected in James's classroom but were not collected due to the end of the school year.

Pre-intervention scores. Pre-intervention total TPOT scores are shown in Table 10, along with the percentage of preventive practice items that were in place. This subset was examined separately so that practices most closely associated with the prevention of challenging behavior could be assessed prior to adding more intensive intervention practices. These items were examined separately in addition to the overall TPOT score. The classroom with the highest initial TPOT score (James's; 49.15% of indicators) was also the classroom with the highest number of preventive practices in place (22 of 39; 56.4%). The classroom with the lowest overall score (Terrell's; 24.58%) also had the fewest preventive practices in place at the beginning of the study (8 of 39; 20.5%).

Prior to intervention, the classroom in which Jennie was enrolled had three red flags. These were *emotions are never discussed in the classroom; teacher rarely encourages interactions between children during play or activities;* and *teacher gives*

directions to all children in the same way without giving additional help to children who need more support. Terrell's classroom had five red flags, which were as follows: *the majority of the day is spent in teacher-directed activities; transitions are more often chaotic than not; during group activities, many children are NOT engaged; children are threatened with an impending negative consequence that will occur if problem behavior persists;* and *teacher rarely encourages interaction between children.* James's classroom had one red flag, which was *teacher rarely encourages interaction between children.*

Post-intervention scores. At the end of intervention, both Jennie's and Terrell's classrooms had higher TPOT scores than they had prior to intervention (by 20 and 15 percentage points, respectively). Both classrooms also had higher numbers of preventive practices in place (53.85% and 48.72% of indicators, respectively). Furthermore, the number of red flags was reduced in both classrooms. In Jennie's classroom, red flags were eliminated. In Terrell's classroom, only the red flag *transitions are more often chaotic than not* remained at post-intervention. Post-intervention TPOT data could not be collected in James's classroom due to the end of the school year (though it was a year-round program, there was a week-long break at this point in the year, after which children returned and were in different classrooms with different teachers).

Study 1

Functional Assessment Results

Jennie. Jennie's target activities were transitions and centers; her target behaviors are shown in Table 3. It was hypothesized that the function of Jennie's challenging

behavior during transitions was to delay or escape the transition. Challenging behavior was maintained by release from the task demands (i.e., she was allowed to delay or escape the transition) and sometimes by additional adult attention. The strategies from the behavior support intervention (shown in Table 4) were implemented during transitions to test the intervention. All strategies in the plan were implemented during testing. The results of this testing are shown in Figure 2. Target behavior ranged from 0 to 55% of intervals during the A condition, during which intervention strategies were not implemented. During the first A condition, challenging behavior was exhibited in about 20% of intervals. During the next 5 sessions, challenging behavior was stable and near zero. In the fourth and fifth A conditions, challenging behavior was higher, while it remained low in the final B conditions.

It was hypothesized that the function of Jennie's challenging behavior during centers was to obtain or keep desired items (e.g., markers, paint). These behaviors were maintained by peers relinquishing the items (e.g., when Jennie pulled a peer's hair, the peer gave Jennie the purple paint and left the art table) and by subsequent adult attention. Components and strategies of Jennie's intervention plan for centers are shown in Table 5. Using a withdrawal design, the hypothesis and plan were tested for the activity prior to intervention, the results of which are shown in Figure 2. All strategies in the plan were implemented during testing. Target behavior ranged from 0.5% of intervals to 14% of intervals during A conditions. Target behaviors were not exhibited during B condition observations. During initial A conditions, target behaviors were exhibited at low levels but increased during the final 2 A conditions.

52

Terrell. Terrell's target activities were transitions and circle. His target behaviors for each activity can be seen in Table 3. It was hypothesized that the function of Terrell's challenging behavior during transition time was to escape task demands (cleaning up) and delay the transition from a preferred activity (breakfast) to a nonpreferred activity (circle). These behaviors were maintained by the adult releasing Terrell from the task demands (e.g., cleaning up his breakfast for him) and by adult attention. Using all strategies shown in Table 5, the behavior support intervention was tested. Target behavior ranged from 75% to 100% of intervals during A conditions during hypothesis testing. During the first A condition, target behavior was exhibited during 25% of intervals and increased to 100% of intervals during the following 2 A conditions. During B conditions, target behavior ranged from 0 to 22% of intervals. In the first B condition, target behavior was exhibited in 22% of intervals and decreased to zero over the following 2 B conditions.

It was further hypothesized that Terrell engaged in challenging behavior during circle to obtain attention from adults and peers. Circle was generally not engaging to Terrell, and many of the activities presented, such as literacy activities, were not activities at which he was successful. All the strategies from Terrell's intervention were included in testing, and a pattern was quickly identified. His intervention and data from testing can be seen in Table 6 and Figure 3, respectively. Challenging behavior ranged from 45% to 60% of intervals during A conditions. During the first A condition, target behavior was exhibited during 45% of intervals and increased to 60% over the following 2 A conditions. and from 2% to 20% of intervals during B conditions. Target behavior was

low in the first B condition, increased to 20% of intervals in the second B condition, and decreased to about 5% of intervals in the final B condition.

Treatment Fidelity

   Fidelity of teacher training. For each training session with a teacher, data on adherence to the training protocol were collected on a training fidelity form (Appendix A). Fidelity data were collected by the student researcher in all three trainings. An additional independent observer also completed this form in the training for Terrell's teacher (50% of trainings in Study 1; 33% of all trainings). All training components were implemented with 100% fidelity in both trainings in Study 1 and Study 2. Interobserver agreement on fidelity for training conducted for Terrell's teacher was 100%.

   Fidelity of feedback. Following each intervention session, but prior to the next session, the coach met with teachers to deliver feedback on their implementation of the individualized behavior support plan intervention components. This included positive feedback (i.e., strategies the teacher implemented fully and well), corrective feedback including examples to try, a plan for the next session, and an encouraging closing. Adherence to this feedback protocol was tracked on a feedback fidelity sheet by the coach in every session (Appendix B). Fidelity of feedback as reported by the coach was 100% for both teachers in all sessions.

   Fidelity of intervention implementation IOA. Interobserver agreement data were also collected on the treatment fidelity checklists for a minimum of 20% of observations in each phase in each study. Percent agreement on treatment fidelity for Study 1 is shown in Table 11.

In the classroom in which Jennie was enrolled, IOA data were collected on the interventionist's implementation fidelity for 25% (1 of 4) of observations in baseline in the first target activity. These data were collected on 38% (5 of 13) of observations in the intervention phase for transitions. Average IOA on fidelity was 88% and 100% in baseline and intervention, respectively. Fidelity IOA was collected for 50% (4 of 8) of baseline observations in the second activity, centers. Agreement was 100% in all sessions. There was no intervention phase for Jennie in centers.

In Terrell's first target activity, transitions, IOA data were collected on the interventionist's implementation fidelity in 25% (1 of 4) of baseline sessions and 22% (4 of 19) of intervention sessions. Agreement was 100% in all sessions in both conditions. For the second activity, circle, fidelity IOA data were collected in 38% (8 of 21) of baseline sessions and 33% (1 of 3) of intervention sessions. Average IOA on fidelity in baseline was 97.6%. Agreement was 100% in the intervention session in which fidelity IOA data were collected.

Fidelity of individualized behavior support intervention implementation. To address the second research question, treatment fidelity data were collected by the student researcher (in the classroom in which she was not a coach) or trained graduate research assistants during all sessions in baseline and intervention phases. Each item on the fidelity checklist (Appendices C and D) was marked according to whether it occurred and who implemented the strategy (i.e., the teacher or coach). Results are presented as a percentage of components implemented for overall fidelity, and then shown for each implementer (e.g., teacher or coach).

Total fidelity of individualized behavior support intervention implementation.
Total fidelity represents the overall percentage of items on the fidelity checklist that were implemented in a given session, regardless of whether they were implemented by the teacher or the coach. Data on total fidelity are shown in Figure 4. The purpose of monitoring fidelity at this level was to ensure that, irrespective of implementer, the target child was receiving the intervention as it was designed in the target activity.

During Jennie's transitions, no intervention components were implemented during baseline sessions. Average fidelity during the intervention condition was 89.7% (range = 60% - 100%) Typically, fidelity during intervention was above 80%, with the exception of two sessions. During the third intervention session (66.7%), the items *child is given a direct transition warning* and *child is provided with positive, descriptive praise for transitioning appropriately* were not implemented. In this session, the child was given two descriptive praise statements, but the threshold for receiving credit was three descriptive praise statements. During the tenth intervention session, fidelity was low (60%) because the transition was fast and chaotic due to rushing inside to circle from the playground after it began to rain. After both sessions with inadequate fidelity, the data were reviewed with the teacher and fidelity returned to 100% during the subsequent session.

During transitions for Terrell, an average of 5.9% of all components was implemented during baseline (range = 0-12.5%). During intervention, average total fidelity was 91.1% (range = 29% - 100%). After the first intervention session (29%), fidelity was high and stable for the remainder of intervention. In the fifth intervention session, fidelity was 75% because the following item was not marked: *once the child is*

56

seated at the next activity, it begins within two minutes (i.e., wait time is under two minutes). In this session, the transition was unusually long with excessive wait time before circle began.

During centers for Jennie, none of the items was implemented in baseline except in one session when one item was implemented. During that session, the teacher was seated near Jennie at the art table for the entire session, so the fidelity item *teacher maintains proximity to target child* was marked. This did not happen again after the first instance. The individualized behavior support intervention for centers was never implemented with Jennie due to low rates of challenging behavior, so all fidelity data shown were collected during baseline sessions.

During circle for Terrell, an average of 40.4% (range = 16%-83.3%) of the items was implemented during baseline. In the first session, fidelity was low (16% of items), but after that session it was variable. Fidelity was variable during baseline because the teacher spontaneously began implementing some of the strategies from the individualized behavior support plan developed for transition during the circle time activity, such as providing choices and positive descriptive praise. After session 20, the teacher was instructed to minimize the use of these strategies during circle baseline sessions. Prior to the introduction of the individualized behavior support intervention for the targeted circle activity, fidelity was 33.3% for three consecutive sessions. After intervention was implemented, average total fidelity was 88.9% (range = 83.3%-100%) over three sessions. Total fidelity increased immediately after the introduction of intervention and remained high for all three points. Data collection for Terrell ended abruptly due to his

leaving the program in which he was enrolled. His departure meant there was no opportunity to fade the coaching provided to his teacher.

Fidelity of individualized behavior support intervention by implementer. Fidelity was also measured according to who implemented the strategy (i.e., teacher or coach). Results of this analysis for Study 1 are shown in Figure 5. On each of these graphs, the vertical line marks the switch from the baseline condition to the intervention condition. The arrows indicate the sessions in which the coach began fading support by prompting the teacher to implement the strategies. If the teacher implemented a strategy incorrectly or incompletely, the coach would then implement the strategy.

If only one adult implemented a component, credit was given to that adult. If both adults implemented a component, credit was given to the teacher only. Thus, as shown, teacher and coach are mutually exclusive. When calculating percentage of components implemented by the teacher (or coach), the number of components the teacher (or coach) implemented was divided by the total number of possible components. The percentage of components implemented by the teacher plus the percent of components implemented by the coach sum to the total percent of components implemented in each session (i.e., the denominator is the total possible number of components, not the number of components implemented).

During Jennie's baseline condition for transitions, no components were implemented. During Jennie's intervention condition for transitions, the coach implemented an average of 58.7% of the individualized behavior support intervention components (range = 40% - 80%), while the teacher implemented an average of 29.7% of components (range = 20% - 40%). The coach implemented most of the components

throughout the condition. Though the teacher increased her implementation somewhat over the course of the intervention (her implementation leveled off at 40% of components for the final four sessions), the coach was generally implementing most of the components during intervention.

During Terrell's first target activity, transition, the coach did not implement any individualized behavior support intervention components in baseline. The teacher implemented an average of 5.9% of components (range = 0 – 12.5%) in baseline. During the intervention condition for transition, the coach implemented an average of 41.1% of components (range = 0 - 86%). The teacher implemented an average of 48.6% of components (range = 0 – 100%). Early in the intervention condition, the coach was implementing more components than the teacher. As the coach began fading support, the teacher's implementation increased until she was implementing almost all the components.

The individualized behavior support intervention was not implemented in the third tier of Study 1 (i.e., during centers for Jennie). During baseline for Terrell's second target activity, circle, the coach did not implement any intervention components. The teacher implemented an average of 40.1% of components (range = 16% - 83.3%). Teacher fidelity was variable during baseline because the teacher spontaneously began implementing some strategies from the individualized behavior support intervention developed for transitions during the circle activity, such as providing choices and positive descriptive praise. After session 20, the teacher was instructed to minimize use of these strategies during circle baseline sessions. During intervention, the coach implemented an average of 16.7% of components (range = 0 – 33.3%). The teacher implemented an

average of 77.8% of components (range = 66.7% - 100%). Intervention during circle only lasted three sessions and there was no coach-fading phase because Terrell was withdrawn from the program by his mother.

Effects of Individualized Behavior Support Interventions on Challenging Behavior

        Interobserver agreement. Percentage of interobserver agreement on the primary dependent measure (i.e., challenging behavior) was collected for a minimum of 20% of observations in each phase for each child and each activity. Actual percentages of sessions varied across children and are discussed below. Percent agreement is shown in Table 12.

        Jennie. For transitions, IOA data for challenging behavior were collected in 50% (2 of 4) of Jennie's baseline sessions and 31% (4 of 13) of intervention sessions. Average IOA was above 80% in both phases (88% and 100%, respectively). Interobserver agreement data were collected in 50% (4 of 8) of baseline sessions in centers. Average IOA was 93.9%. There were no intervention sessions in centers so no data for challenging behavior were gathered.

        Terrell. For transitions, IOA data for challenging behavior were collected in 25% (1 of 4) of baseline sessions and 26% (5 of 19) of intervention sessions. Interobserver agreement was 73.7% in the baseline session and was 93.2%, on average, in intervention sessions. For circle, IOA data were collected in 38% (8 of 21) of baseline sessions and 33% (1 of 3) of intervention sessions. Average IOA was above 97% for both of Terrell's activities in both phases.

Effects of individualized behavior support interventions on children's challenging behavior. The effects of individualized behavior support interventions were measured by the percent of intervals during which the target child exhibited challenging behavior in each of his or her target activities. The effects of the intervention in Study 1 are illustrated in Figure 6. On each of these graphs, the vertical line marks the switch from the baseline condition to the intervention condition. The arrows indicate the sessions in which the coach began fading support by prompting the teacher to implement the strategies. If the teacher implemented a strategy incorrectly or incompletely, then the coach would implement the strategy.

During baseline in transitions, Jennie's challenging behavior ranged from 34% to 80% of intervals. After four baseline sessions, the coach and the teacher began implementing the individualized behavior support intervention in transitions. Immediately after the intervention began, challenging behavior dropped to zero, where it remained for six consecutive sessions. After the fourth intervention session, the coach began fading her intervention support and transferred intervention implementation to the teacher. In Figure 6, this is marked by an arrow. During this fading phase, Jennie's challenging behavior became more variable, ranging from zero to 9% of intervals over the six fading sessions but remained significantly below baseline levels.

Terrell's first target activity was the transition from breakfast to morning circle. During baseline, his level of challenging behavior ranged from 20% to 100% of intervals. After seven baseline sessions, the individualized behavior support intervention was begun with Terrell during the transition. The level of his challenging behavior dropped immediately after intervention began. During the 11 intervention sessions during

transition, the level of challenging behavior was below baseline levels and became less variable. Challenging behavior ranged from zero to 9% of intervals. The coach began fading support after the eleventh intervention session (marked on the graph by an arrow). After this point, behavior was more variable, but the overall level was lower than during baseline. Challenging behavior ranged from zero to 34% of intervals during the last ten sessions.

Over the course of baseline data collection in centers, Jennie's second target activity, the level of challenging behavior dropped to near-zero levels without the individualized positive behavior support intervention being implemented. When centers occurred, which was not every session due to extended outdoor play, challenging behavior ranged from zero to 12% of intervals. Challenging behavior in the last three sessions was between zero and 1%. As a result, the decision was made not to implement the individualized positive behavior support intervention with Jennie during centers. The reasoning was twofold: first, levels of challenging behavior were so low that it would have been impossible to see any meaningful change. Second, at that point in the school year, center time was taking place infrequently and irregularly, which would have made implementation and data collection inconsistent.

During baseline for Terrell's second target activity, circle time, his challenging behavior was highly variable. Baseline rates ranged from about 6% to 100% of intervals. After the individualized positive behavior support intervention began, the level of challenging behavior during circle dropped from 58% to 3% of intervals over three consecutive sessions and became more stable. Data collection ended abruptly due to Terrell being withdrawn from the program by his mother.

Study 2

Functional Assessment

James's target activities were transition (i.e., to circle), circle, and small groups. His target behaviors for each of these activities can be seen in Table 3. The results of hypothesis testing for all three activities are shown in Figure 7. During transitions, target behavior was high (between 83% and 100%) during A sessions and low (between 0 and 5% of intervals) in B sessions. During circle, target behavior was higher (between 48% and 64% of intervals) during A sessions and low (between 0 and 5% of intervals) during B sessions. During small groups, target behavior was observed during 24% of intervals in the first A session, but then dropped to 3% of intervals in the second A sessions. After that, it showed an increasing trend over the following two A sessions, ending at 100% of intervals. Target behavior was low (between 0 and 5% of intervals) during all B sessions.

It was hypothesized that the function of James's challenging behavior during the transition was to avoid moving from a preferred activity (i.e., free play), to circle—a nonpreferred activity. These behaviors were maintained by an adult releasing James from the task demands (i.e., he was not required to transition to circle) and sometimes by additional attention from the lead teacher. It was hypothesized that the function of James's challenging behavior during circle was to escape the activity. This was maintained by releasing the task demand (i.e., allowing James to play freely rather than participate in circle). This was also the hypothesis for small groups.

Treatment Fidelity

Fidelity of teacher training. For the training, data on adherence to the training protocol were collected on a training fidelity form (Appendix A). These fidelity data were collected by the researcher. All training components were implemented with 100% fidelity in James's teacher's training.

Fidelity of feedback. Following each intervention session, but prior to the next session, the coach met with teachers to deliver feedback on their implementation of intervention components. This included positive feedback (i.e., strategies the teacher implemented fully and well), corrective feedback including examples to try, a plan for the next session, and an encouraging closing. Adherence to this feedback protocol was tracked on a feedback fidelity sheet by the coach in every session (Appendix B). Feedback fidelity was 100% as reported by the coach in all sessions.

Fidelity of individualized behavior support intervention implementation IOA. Interobserver agreement data were also collected on the treatment fidelity checklists for a minimum of 20% of observations in each phase. Percent agreement on treatment fidelity for Study 2 can be seen in Table 13.

For James's first activity, transitions, fidelity IOA data were collected in 50% (2 of 4) of baseline sessions and 29% (5 of 17) of intervention sessions. Agreement was 100% in both baseline sessions and was 96.7% on average during intervention sessions. During circle, fidelity IOA data were collected in 22% (2 of 9) of baseline sessions and 42% (5 of 12) of intervention sessions. During small groups, fidelity IOA data were collected in 23% (3 of 13) of baseline sessions and 40% (2 of 5) of intervention sessions.

Fidelity of individualized behavior support intervention implementation.

Treatment fidelity data were collected by trained graduate research assistants during all sessions in baseline and intervention. The fidelity checklists for James's target activities are shown in Appendix E. Each item on the fidelity checklist was marked according to whether the teacher or coach implemented the strategy. Results are presented as a percentage of components implemented by both the teacher and coach combined, and then are shown for each implementer (e.g., teacher or coach).

Total fidelity of individualized behavior support intervention implementation. Total fidelity represents the overall percentage of items on the fidelity checklist that were implemented in a given session by either the teacher or the coach. Data on total fidelity are shown in Figure 8. The purpose of monitoring fidelity at this level was to ensure that, irrespective of implementer, the target child was receiving the individualized behavior support intervention as it was designed for each target activity.

During baseline for James's first activity, transitions, an average of 20.8% of individualized behavior support intervention components were implemented during baseline. Implementation was stable and low, ranging from 16.6% of components to 33.3% of components during baseline. During intervention, an average of 98% of intervention components were implemented. Total implementation increased immediately after the introduction of intervention and remained high and stable for the duration of intervention. Total fidelity was above 80% in all intervention sessions during transitions.

During baseline for James's second activity, circle, an average of 21.4% of individualized behavior support intervention components were implemented during baseline. Implementation during baseline was variable, ranging from 0 to 43% of

components. Immediately after intervention was introduced, implementation increased to 100%, where it remained for the duration of the intervention condition. During baseline for small groups, no components of the intervention were implemented in any session. During intervention, an average of 96% of intervention components were implemented. Immediately after intervention was introduced, implementation increased to 100% of components. In the second intervention session, 80% of components were implemented, but implementation returned to 100% in the following session and remained there for the final three sessions.

Fidelity of individualized behavior support intervention by implementer. Fidelity was also measured according to who implemented the individualized behavior support intervention strategy (i.e., teacher or coach). Results of this analysis for Study 2 are shown in Figure 9. If only one adult implemented a component, credit was given to that adult. If both adults implemented a component, credit was given to the teacher only. Thus, as shown, teacher and coach are mutually exclusive. The percent of components implemented by the teacher plus the percent of components implemented by the coach sum to the total percent of components implemented in each session (i.e., the denominator is the total possible number of components, not the number of components implemented).

During baseline for transitions, the coach did not implement any intervention components in any session. The teacher implemented an average of 20.8% of components during baseline. Teacher implementation ranged from 16.6% of components to 33.3% of components during baseline. During intervention, the coach implemented 3.9% of components, and the teacher implemented 94.1% of components on average. In the first

intervention session, the teacher implemented 33.3% of components, while the coach implemented 50% of components. After the first session, teacher implementation increased to 100% of components and remained high (between 83.3% and 100%) and stable for the duration of intervention.

During baseline for circle, the coach did not implement any individualized behavior support intervention components in any sessions. The teacher implemented an average of 21.4% of components during baseline. Her implementation during baseline was variable, ranging from 0 to 43% of components. During intervention for circle, the coach implemented 4.5% of components and the teacher implemented 95.2% of components on average. Immediately after intervention was introduced, implementation showed an increasing trend and reached 100% in the fourth intervention session, where it remained for the duration of the intervention condition.

During baseline for small groups, neither the teacher nor the coach implemented any individualized behavior support intervention components in any session. During intervention, the coach implemented an average of 4% of intervention components, and the teacher implemented an average of 92% of components. Immediately after the intervention was introduced, teacher implementation increased from 0 to 100% of components. In the second intervention session, the teacher implemented 60% of components and the coach implemented 20% of components. After that session, teacher implementation returned to 100% and remained at that level for the remaining three intervention sessions.

Effects of Individualized Behavior Support Intervention on Challenging Behavior

Interobserver agreement. The percentage of interobserver agreement on the primary dependent measure (i.e., challenging behavior) was collected for a minimum of 20% of observations in each phase for each activity. Average percent agreement is shown in Table 14. For James's first activity, transitions, IOA data for challenging behavior were collected in 25% (1 of 4) of baseline sessions and 29% (5 of 17) of intervention sessions. During circle, IOA data for challenging behavior were collected in 22% (2 of 9) of baseline sessions and 42% (5 of 12) of intervention sessions. During small groups, IOA data for challenging behavior were collected in 23% (3 of 13) of baseline sessions and 40% (2 of 5) of intervention sessions.

Effects of individualized behavior support intervention on child challenging behavior. The effects of James's individualized behavior support interventions were measured by the percent of intervals during which he exhibited challenging behavior in each of his target activities. Data on James's level of challenging behavior are shown in Figure 10. His first target activity was the transition from free play to morning circle. During baseline, his challenging behavior ranged from 50% to 100% of intervals. Intervention began in transition after four baseline sessions. In the first transition intervention session, the level of challenging behavior dropped to zero. It remained at zero for all sessions, with the exception of session 17 (11%). In this session, the child briefly grabbed the PDA from the observer, which was coded as challenging behavior.

During baseline for James's second activity, circle time, his rates of challenging behavior ranged from 7% to 60% of intervals and showed an increasing trend. Baseline data collection lasted for nine sessions. After individualized behavior support

intervention began, there was an immediate decrease in problem behavior. The level of challenging behavior was consistently low, ranging from 0 to 7% of intervals.

During baseline in small groups, his level of challenging behavior was highly variable, ranging from 0 to 100% of intervals. During intervention, challenging behavior ranged from 0 to 11% of intervals. After the second intervention session, challenging behavior dropped to zero and remained there for the final three sessions.

Social Validity

After intervention ended, the three teachers (two teachers in Study 1 and one teacher in Study 2) were asked to complete a social validity questionnaire. The questionnaire had two types of questions: those rated on a four-point scale (1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree), and open-ended questions. The rating scale questions, along with the average responses, are shown in Table 15. All respondents rated all questions *agree* or *strongly agree*, with two exceptions. One teacher disagreed with the statements that it did not take a lot of time to learn the practices and to use the practices.

The open-ended questions were used to elicit teachers' opinions on the benefits of and barriers to using the individualized behavior support intervention strategies, as well as whether they think they will continue to use the strategies in the future.

Benefits of the individualized behavior support interventions. All teachers responded that the strategies were effective in improving the target children's behavior. One teacher noted that she believed the strategies she learned were "not only beneficial for my [target] student, but provided ways for me to address concerns with other

students." This was echoed by another teacher, who said, "the plan helped our target child, but also the other children in the classroom." One teacher also indicated that the entire team learned the strategies (even though only the lead teacher was the focus of coaching), and that the coaching process "promoted the importance of consistency" across adults' reactions to children's behavior. Teachers also responded that it was helpful to have an unbiased "set of eyes" watching in the classroom and helping manage children's behavior.

Barriers to effective implementation of the individualized behavior support intervention. Two three teachers responded that a lack of support from other adults was a possible barrier to implementation. One said, "the only challenge is having the right amount of support (from adults) when implementing the strategies for the first time." Another said one struggle was "having enough support to provide 1:1 prompts when needed." Other teachers noted the difficulty of changing old ways of responding, and one indicated that she felt "the amount of time required with one student would sometimes get in the way of giving the remaining students an appropriate amount of attention."

Continued use of individualized behavior support intervention strategies. All three teachers responded that they will continue to use the strategies in the future, noting that they were "easy" and "effective." One teacher said she will continue using them with the target child but also "broaden it to use with several other children." One teacher remarked that the intervention "made my life easier!"

CHAPTER IV

DISCUSSION

The purpose of this study was to evaluate the effects of individualized behavior support interventions implemented in targeted activities on young children with challenging behavior in the classroom setting. The first research question was to what extent teachers would implement individualized behavior support interventions in targeted activities with support from a coach in the classroom. The second research question was whether the individualized behavior support interventions were associated with decreases in challenging behavior in the target activities in which the interventions were implemented. The third research question focused on fading of coach support and corollary relationships with teacher implementation of the individualized behavior support intervention and children's challenging behavior.

The first and third research question both focused on fidelity of individualized positive support intervention implementation. Few studies to date have indicated the degree to which interventionists implement individualized positive behavior support interventions with fidelity. A major feature of this study was in-classroom implementation of behavior support plans, including an expert coach supporting teachers in learning and implementing strategies on the plan. In this study, fidelity was examined in two ways: total fidelity to the individualized positive behavior support intervention (i.e., implementation of a given component by teacher or coach) and fidelity by implementer (e.g., teacher, coach). In previous studies in which fidelity was measured, it

often was not measured across phases (i.e., baseline, intervention). In this study, both measures of fidelity were completed by the coach in every session in both phases. This extends the literature in three ways. First, it provides information on what types of individualized behavior support intervention strategies teachers are or are not using during baseline conditions. In Study 1, teachers did not consistently implement any intervention strategies during baseline, with one exception. The exception was Terrell's teacher, who spontaneously began adapting prevention strategies from his first target activity's intervention and applying them during the baseline phase of his second target activity. While the coach prompted the teacher to stop using the strategies until individualized behavior support intervention began in the second target activity, it is encouraging that some teachers might see a practice working with one child in one activity and be able to apply it in another activity.

Second, frequent measurement of fidelity ensured that the interventions were being implemented as designed. In the present studies, teachers were given live feedback each day on the previous day's session, and were shown graphs of the target child's challenging behavior. Graphs of implementation fidelity for each implementer (i.e., teacher or coach) were also shown to the teacher. If the previous day's fidelity was below 80% overall, the reasons were discussed and fidelity was always over this threshold in the subsequent session. During the coach-fading sessions, the teachers were primarily responsible for intervention implementation. However, if a teacher did not implement a component or implemented it incorrectly, the coach would step in to implement the component. This ensured that the target children were receiving the individualized behavior support intervention as intended, and also allowed the coach to provide a model

for the teacher. Over the course of the intervention, all teachers increased the percentage of intervention components that they implemented independently. However, this was not directly associated with coach fading in all cases. Coach support was never faded for James's teacher in any of his target activities, because the teacher implemented the intervention at high levels immediately following the introduction of intervention in each activity.

Third, the way fidelity was measured in this study helps illuminate issues of transfer by providing information on what teachers do when coaching support is faded. There was no true maintenance condition, so conclusions cannot be drawn regarding the extent to which teachers continue to implement intervention strategies when the coach is not present. However, some information is available regarding the effects of coach fading. In this study, teachers' responses to coach fading varied substantially. After the coach began fading support, Jennie's teacher implemented more intervention components then she had before the coach faded, but never reached a point where she was fully implementing without the coach implementing components. Terrell's teacher consistently implemented the majority of intervention components in both target activities after coach support was faded, though it would have been ideal to have had more sessions in his second target activity to ascertain whether this effect continued as the teacher was responsible for intervention in two different activities at the same time. Finally, James's teacher began implementing all the intervention components independently almost immediately, and coach fading was never necessary because she was implementing at such a high level. In this case, it seems likely that the teacher was already fairly skilled, but that the coach's presence and continued feedback on the teacher's performance were

important. However, without a true maintenance condition, this cannot be known for sure.

A limitation of this study was that coach support was not faded systematically (e.g., there were not specific criteria for when the coach began fading) and no data were collected on whether or how often the coach prompted teachers to implement intervention strategies. This limits the ability to replicate these procedures, as well as the conclusions that can be drawn about the in-class supports required for teachers to implement intervention strategies, and the degree to which teachers can implement intervention strategies independently.

The second research question was whether implementation of individualized positive behavior support interventions was associated with decreases in challenging behavior in the target activities in which the intervention was implemented. All children's challenging behavior decreased significantly in all target activities during which intervention was implemented. Challenging behavior also became less variable after intervention. It would also have been worthwhile to assess whether children's decreases in challenging behavior generalized to non-targeted activities. Few studies to date have examined generalization, but those that have measured it did so in non-targeted activities (Blair et al., 2010; Blair et al., 1999). While generalization probes across activities were planned in this study, they did not occur because the classrooms did have not additional activities that were similar enough to the target activities in which generalization could be assessed. All target activities in the study classrooms took place in the morning, after which classrooms typically had lunch and then nap. If there were afternoon activities, they were not structured enough to be reasonable comparisons to the target activities. As

the study went on, even these afternoon activities became less frequent as afternoon time was given over to more outdoor time and special activities. This lack of a generalization condition prohibits the examination of whether children's behavior changes generalized to other activities.

Another question regarding generalization is whether teachers generalized the use of intervention strategies to other children or activities during the day. While this study did not include probes for teachers' generalization of intervention strategies to other children or other activities during the day, the changes in TPOT scores from pre- to post-intervention provided some information about this issue. Examination of the changes in TPOT data provides some interesting suggestions about changes in teacher behavior.

In previous studies, typical total TPOT scores in early childhood classrooms in the absence of intervention have been shown to be between 30%-40% of indicators (Artman & Hemmeter, 2011; Snyder, Hemmeter, Fox, Crowe, & Miller, 2012). Jennie's classroom scored within this same range. Terrell's classroom scored somewhat lower than this typical score range, while James's classroom scored somewhat higher than is typical in the absence of intervention. The *preventive practices* subset has not been analyzed in other studies, so the typical level of preventive practices present in early childhood classrooms in the absence of intervention is not known.

In previous studies, the average number of red flags in the absence of intervention has been between 2 and 2.6 (Artman & Hemmeter, 2011; Snyder, Hemmeter, Fox, Crowe, & Miller, 2012). In two of the three classrooms (i.e., those in which post-intervention TPOT data were collected), overall TPOT scores improved after intervention, and the number of red flags was reduced or eliminated. This indicated that

even though the interventions were applied with individual children, it is possible that the teacher applied certain strategies at a more universal (i.e., classroom) level. To further examine this question, an analysis of TPOT score changes was carried out to answer three questions: (a) on which items did teachers receive credit on the post-intervention TPOT but not the pre-intervention TPOT?; (b) were these items related to the strategies in the behavior support plans?; and (c) were these items related to the bottom of the Teaching Pyramid, the top, or both? While this does not provide evidence for teacher generalization of intervention strategies in the same way that direct measurement would, it contributes to knowledge on generalization by providing insight on what teachers do at a classroom level after receiving coaching for an individual child.

Jennie's teacher received credit on 29 indicators (excluding red flags) at post intervention for which she had not received credit at pre-intervention. In addition, no classroom-wide challenging behavior was observed in the post-intervention observation, so that item was not completed (other than indicator 5.1). Terrell's teacher received credit on 27 indicators (excluding red flags) at post intervention for which she had not received credit at pre-intervention. Challenging behavior was observed during this observation, so that item was scored. However, it is not possible to see from the TPOT whether the child (or children) responsible for the challenging behavior during this observation was the target child or another child.

Many of the indicators for which credit was given at post-intervention were related to the behavior support plan. For example, in Jennie's classroom, three of these indicators were in the item *transitions between activities are appropriate*. The first indicator was *teacher has transition strategies that ensure children are actively engaged*

in the transition, the second was *direct warnings are provided to individual children who may have difficulty prior to transitions*, and the third was *teacher effectively guides individual children who need extra support during the transitions*. Considering that transition was one of Jennie's target activities, it is logical that scores on this item would increase. Giving Jennie a direct warning prior to transition was an element of the individualized behavior support plan. Transitions were also a target activity for Terrell, and scores increased for that item in his classroom as well. Terrell's teacher received credit for four indicators (out of 8) at post intervention on which she had not received credit at pre intervention. These were: *a whole-class warning is provided prior to transition; teacher has transition strategies that ensure children are actively engaged in the transition; teacher provides positive, descriptive feedback for children who engage in the transition appropriately;* and *teacher effectively guides individual children who need extra support during the transitions*. Terrell's teacher also received credit for five indicators under the item related to promoting children's engagement. These indicators are likely related to Terrell's individualized behavior support plan for circle time. They included: *teacher communicates with children on eye level most of the time; structured large group activities (e.g., circle) are structured so that children are actively engaged almost all of the time; teacher assists individual children in selecting activities and becoming actively engaged; teacher frequently comments positively on children who are engaged in activities;* and *teacher modifies instruction or activity when children lose interest in large- and small-group activities.*

Several of the items for which the teachers received credit after intervention but not before were also top-tier strategies (i.e., those related to the teacher's capacity to

individualize supports for children). In Jennie's classroom, this included items related to individualization under items rating schedules and routines, transitions, and providing directions. In Terrell's classroom, this included items related to individualization under items related to transitions, supportive conversations, promoting children's engagement, providing directions, and using effective strategies to respond to problem behavior.

Additionally, some items that improved were those related to bottom-tier strategies. In Jennie's classroom, these were items related to supportive conversations and teaching social skills and emotional competencies. In Terrell's classroom, they were items related to schedules and routines and supportive conversations. While these were not directly related to the individualized behavior support intervention plans, it is possible that teachers have more time for and are more inclined to implement strategies associated with these items when they are not spending large amounts of time addressing child challenging behavior.

Both teachers also increased their scores on the interview portion of the TPOT. This included items related to teaching children to express emotions, teaching problem solving, and supporting friendship skills. These items were not directly addressed through the individualized behavior support intervention, but it is possible that teachers became more aware of children's social and emotional needs after going through the behavior support process. It is also possible that teachers simply became better at talking about their practices after having been supported in doing so through the experience of coaching. Overall, this suggests that providing teachers with intensive support for an individual child's behavior can have effects on teachers' class-wide implementation of strategies at the bottom as well as the top of the Pyramid that are and are not directly

related to the individualized behavior support interventions implemented in targeted activities.

Limitations

There were several limitations in the present study. First, the procedures for testing hypotheses about the functions of challenging behavior were not fully explored. Prior to intervention, hypotheses were generated regarding the function of each child's challenging behavior in each target activity. Strategies addressing these functions (i.e., prevention and reinforcement strategies) were compiled into individualized behavior support interventions. These interventions were applied and withdrawn by the coach using an A-B-A-B design in the classroom until clear patterns of behavior were observed. While the functions of the behaviors were hypothesized and strategies were tested, alternative hypotheses cannot be excluded. For example, if the hypothesized function of challenging behavior in a certain activity was escape, it cannot be ruled out that attention was the true function, because not all possible functions were tested. Furthermore, during testing, the coach did not manipulate any variables during the A conditions—these consisted only of "business as usual" practices. Manipulating variables in A conditions (e.g., by using the hypothesized function to increase the level of the challenging behavior) would provide more information about the functions. While intervention strategies were tested prior to beginning study data collection, and control over the challenging behaviors was established, this was not hypothesis testing as described in the experimental functional behavior analysis literature.

Second, despite having exhibited challenging behavior in screening observations and intervention testing, Jennie did not exhibit challenging behavior at criterion levels during baseline in her second target activity, centers. It is not known why this behavior change occurred spontaneously, though there are at least three possibilities. The first is that Jennie's observed challenging behavior during screening and testing was not typical, though this seems unlikely because teachers reported that activity as problematic. The second is that the presence of the researchers, particularly the coach, was associated with the change in Jennie's behavior. This is also unlikely, because the presence of researchers did not affect her challenging behavior during baseline in the first tier. The third is that some element of the individualized behavior support intervention in the first activity (i.e., transitions) affected Jennie's behavior in the second activity. The presence of a replication in this design tier would strengthen the design and the overall conclusions of Study 1.

Third, this study also has some limitations related to interobserver agreement on the primary dependent measure (challenging behavior), fidelity of individualized behavior support intervention implementation, and the provision of feedback to teachers. In some cases, IOA data were only collected on the primary dependent measure (i.e., children's challenging behavior) one time per condition (i.e., for Terrell in baseline for transitions and intervention in circle, and for James in baseline for transitions). Most often, this was due to the data collectors' scheduling restraints, but was sometimes related to technology problems (i.e., errors with the handheld PDAs used to collect data). Even though IOA data were only collected once in some conditions, agreement was above 80% in these instances except in transitions for Terrell (73.7%). In other cases, IOA data were

collected more than once per condition, but the overall percentage of sessions was still low (e.g., two sessions for James's baseline in circle was only 22% of sessions). For Jennie, IOA data were collected in 35% of all sessions in transitions and 50% of sessions in centers. For Terrell, IOA data were collected for 26% of all sessions in transitions and 38% of sessions in circle. For James, IOA data were collected for 29% of all sessions in transition, 33% of sessions in circle, and 28% of sessions in small groups. Across all children and conditions, IOA data were collected in 33% of sessions. Findings related to changes in children's challenging behavior would have been strengthened with more frequent observations by secondary observers.

Though fidelity IOA data were collected in all conditions for all children and all activities, they were sometimes not collected more than once during a condition (i.e., baseline for Jennie and Terrell in transitions). In the absence of sufficient IOA, the fact that fidelity of implementation data were collected by coaches introduces the possibility of bias, or of error due to being distracted by the demands of implementing the intervention strategies. Additional fidelity IOA would have strengthened the validity of these conclusions.

Another limitation related to IOA is that no IOA data were collected on the fidelity of the coaches' feedback to teachers. Although fidelity to the feedback protocol was reported to be 100% for all sessions for all teachers, these data are possibly biased due to the fact that the coach was collecting data on her own behavior. Independent observation by a secondary observer would make these data much more meaningful. Ideally, in future studies, feedback sessions would be audio recorded and coded by a secondary rater to ensure agreement on fidelity to the feedback protocol.

A final limitation of this study is that few conclusions can be drawn about the generalizability of these findings to other populations of children and teachers in other early care and education environments. For such a small sample (three children), it was fairly diverse in terms of gender, race, SES, and disability status. Two participants were male, and one was female. Two were Caucasian, and one was African-American. One was low SES, and one had a diagnosed disability (i.e., autism). While no other children had diagnosed disabilities, one scored more than two standard below the mean on the BDI-2. In part, this contributes to the literature by providing information about the effects of intervention with children who do not have diagnosed disabilities but who exhibit ongoing challenging behavior, a need cited by Conroy et al. (2005). Teachers also varied in their skill levels and backgrounds (ranging from an associate's degree to part of a master's degree) and how much support they required to implement intervention strategies consistently and with fidelity. The types of early care and education programs were also different from one another: the classrooms were located in a private childcare center, a community pre-K for at-risk children, and a university childcare center. It is unclear how these results might generalize to other children or teachers in other types of programs.

Another issue with generalization relates to the children recruited for and included in this study. The initial plan for this study was to complete Study 1 and then replicate that design with two additional children, for a total of four child participants. Eight children were identified as potential participants at four different centers (one Head Start center and three community programs). Of these, the parents of two children chose not to give consent for their children to participate. The parents who opted not to consent for

their children to participate did not provide any reasons for doing so. This raises the question of whether the behavior of these children or experiences of these families differed in some meaningful way that would be useful to examine. Three children failed to meet the inclusion criteria during the screening observations. Despite a search of the local area, a fourth participant who met the inclusion criteria could not be found within the necessary time frame, so the decision was made to proceed with only the third child, who fortunately had three target activities—allowing a sound, but different, experimental design to be used for Study 2 (multiple probe across activities).

The challenge in locating or recruiting child participants raises several questions worthy of further exploration. The difficulty finding child participants is at odds with teachers' and directors' reports of the extent to which they struggle to address the needs of children with challenging behavior in early care and education settings (Hemmeter, Corso, & Cheatham, 2006; Hemmeter, Santos, & Ostrosky, 2008). It is possible that the inclusion criteria were too restrictive, thereby excluding children who would have benefited from participation. When children failed the initial screen, it was due to not having exhibited challenging behavior in at least 15% of intervals during two different activities over two different days. One potential explanation is that the 15% threshold was too high, and children exhibiting behavior that is lower than that level but still consistent over time should have been included (e.g., those who exhibited consistent challenging behavior over at least two days but below 15% of intervals). No previous studies used a percentage of intervals with challenging behavior as an inclusion criterion, so there is no standard in the literature. This level was chosen for this study because it seemed likely that it was high enough to indicate problematic behavior, but not so high as to be

unreasonable—though this may not have been ideal. Ultimately, children who failed to meet the inclusion criteria might also differ from those who were included, and the extent to which the findings of this study might replicate with those children is unknown.

Second, another larger question is related to whether frequency (i.e., a certain level of challenging behavior over a short period) is the best or only indicator of serious, persistent challenging behavior. Other ways of conceptualizing "persistent" challenging behavior may be merited in future research, such as exploring possible differences in patterns of challenging behavior as well as different ways of measuring or conceptualizing it. All the children who failed the screenings in this study exhibited challenging behavior that could have benefited from some in-classroom intervention but their behavior was not at the predetermined criterion for inclusion. Some children in the present study exhibited challenging behavior but not in two different activities or not over at least two different days. There may be several patterns of challenging behavior worth categorizing, such as those characterized by intensity, severity, or another identifiable pattern (e.g., context-specific) that is not as frequent as the criterion set for this study.

While there is limited generalizability of study-specific findings as a result of the issues discussed above, these findings combined with findings from similar studies can provide some tentative conclusions. For example, findings across studies demonstrate that individualized behavior support interventions are effective with children with and without disabilities, of varying SES, race, and gender, and with different challenging behaviors. These findings apply to different activities during the school day in different types of early care and education environments.

Implications for Practice

As illustrated by the pre-intervention TPOT scores, all classrooms in this study differed in terms of the extent to which teachers were implementing practices associated with the promotion of prosocial behavior and the prevention of challenging behavior (i.e., the first two levels of the Teaching Pyramid). One classroom was within the range of Teaching Pyramid practices that has generally been found to be typical in classrooms not receiving intervention (30% - 40% of indicators). One classroom scored below this range, and another classroom scored above it. The goal of this study was to identify "top of the Pyramid" children, or those whose behavior had not been responsive to high-quality developmentally appropriate strategies at the lower levels of the Teaching Pyramid. However, due to the constraints of this study, we could not ensure that strategies at the first two levels of the Teaching Pyramid were being systematically implemented in the study classrooms—we could only describe what was actually in place (or not). Thus, the possibility remains that at least some of these children were not true "top of the Pyramid" children.

One implication for practitioners to consider is how to best identify the children who need individualized behavior support interventions. While teachers frequently report needing assistance with children who are exhibiting challenging behavior, there is no set of guidelines for identifying children who are in need of intensive, individualized support. Often, the challenging behavior of children who might appear to be at the top of the Pyramid could be significantly reduced or eliminated if the strategies at the bottom of the Pyramid were in place in a given classroom or program (e.g., Benedict, Horner, &

Squires, 2007; Gable, 2004; Massey & Wheeler, 2000; Schmit, Alpers, Raschke, & Ryndak, 2000; Smith et al., 2011; Stormont, Lewis, & Beckner, 2005).

Another implication for practice is the issue of irregular or unpredictable daily classroom schedules. As noted, the lack of a generalization condition was primarily related to inconsistent schedules in the study classrooms. This was sometimes an issue at the classroom level (e.g., the teacher deciding to extend, shorten, or eliminate an activity, or to change the order of daily activities). Other times, it was related to decisions made at the program level (e.g., water play started occurring daily or weekly on a certain date, rehearsals for a special program, a Mother's Day tea).

Regardless of the level at which scheduling decisions were being made, a few noteworthy questions emerge: First, what are the repercussions of inconsistent schedules on children who exhibit persistent challenging behavior? In some cases, schedule changes could benefit children with challenging behavior—for example, if a teacher altered an activity in response to children's needs (e.g., the teacher shortened an activity after noticing the child was losing interest). However, in many cases, schedule changes could exacerbate a child's challenging behavior, particularly if changes are common occurrences, not in response to children's needs, or the child would benefit from predictability in classroom routines and schedules. Second, what are the implications of trying to intervene when classroom schedules are irregular? Sometimes young children's challenging behavior is very context specific (i.e., it happens only during a certain activity or under a certain set of circumstances). If that context does not occur regularly or predictably, it is more difficult to design and implement an intervention consistently.

A final implication for practitioners to consider is the issue of how early

childhood programs will be able to implement independently the individualized behavior

support interventions such as those implemented in the present study. The findings from

this study provide evidence that teachers can learn and implement the types of strategies

that are commonly used in behavior support interventions, provided they have frequent

in-classroom support and feedback—a fairly resource-intensive endeavor. In this study,

while the process of designing an individualized behavior support intervention was

explained during training, and teachers' feedback was solicited during plan development,

the intervention was primarily designed by the coach and sometimes primarily

implemented by the coach.

Even when teachers know the general procedures for developing behavior support

interventions, they may need assistance in thinking about how to identify children who

need this level of assistance and how to design interventions tailored to the individual

needs of each child. This is particularly challenging considering the diversity of children

who demonstrate challenging behavior, and the forms and functions those behaviors take.

Furthermore, teachers at all levels of skill and experience may need assistance

from time to time. Two of the teachers in this study had bachelor's degrees, and all had at

least 5 years of experience teaching in early childhood classrooms. Pre-intervention

TPOT data indicate that two of the classrooms were average or above average in terms of

the strategies that were in place to promote young children's social emotional

competence and prevent challenging behavior. Even though some of the teachers in the

present study were clearly fairly well trained and skilled, they needed support to address

the challenging behavior of the target children. All of these issues suggest that programs

will likely need to develop processes for providing teachers with support to implement interventions with fidelity. Key program stakeholders will need to carefully consider optimal ways to build systems so that teachers (or support teams) can learn to develop and implement these kinds of interventions and monitor their effectiveness on their own, or at least can be less reliant on outside or "expert" assistance.

Implications for Future Research

One suggested direction for future research is an examination of the most efficient and effective ways to train teachers on how to develop and implement interventions like the ones in this study. For example, in this study, only the lead teacher was coached to implement the individualized behavior support intervention strategies. Future studies might assess whether these interventions are more effective, efficient, or likely to maintain if an entire teaching team (i.e., all classroom staff) participates in coaching. Researchers should also closely examine what happens when coaching support is withdrawn. In this study, all teachers ended the intervention implementing more strategies independently than they had prior to intervention. The coach also decreased the amount of strategies she implemented over time for two teachers, as those teachers took over more responsibility for implementation. However, in this study, data were not collected on the coaching strategies (e.g., prompting) used in each session, nor was coach support faded in a systematic way. Future research should focus more closely on precisely what supports are needed to have teachers implement individualized behavior support interventions like those used in the present study independently and consistently.

Additional studies might also quantify the process and effects of coach fading, as well as withdrawal of coaching support (i.e., a true maintenance condition).

Another implication for future research is continued exploration of the impact of specific individualized behavior support intervention components (i.e., antecedent manipulation, replacement skill teaching, and consequence modification). The larger body of research has generally shown that individualized behavior plans are effective, but relatively little information has been provided on the specific components of interventions (or combinations of components) that are necessary to change behavior (Conroy et al., 2005; Dunlap et al., 2006). While most previous studies identify the components that were used in the intervention (i.e., antecedent manipulation, teaching replacement skills, or consequence modification), relatively few have provided detailed information about specific component strategies used with specific children. In the present study, detailed information is provided about the components of the behavior interventions for each target child. All of the behavior support interventions in this study contained multiple strategies for two components: antecedent manipulation (i.e., prevention) and consequence modification (i.e., reinforcement). This begins to address the question "how much of a plan is necessary?"—though more work remains to be done. For instance, none of the children in this study was systematically taught a replacement skill. In cases when a replacement skill is clearly lacking, results might be different in terms of how long it takes to show a decrease in challenging behavior. It is also possible that it would take more time for teachers to learn to implement systematic replacement skill teaching strategies with fidelity. The present study cannot provide complete information on children whose behavior requires three-component plans, but does

provide more detailed information than has been available to date about which strategies were associated with each of the components that were included as part of the individualized behavior support intervention. Future research should examine questions of which components are necessary for certain children or certain challenging behaviors. Studies could also examine factors that would impact practitioners' decisions about necessary components, and how to ensure a balance between parsimony (i.e., not including components that are unnecessary) and completeness (i.e., including all components needed to effectively change behavior).

This issue also raises questions about if and when components should be withdrawn and the impact on maintenance of behavior change. While all children's challenging behavior in this study was reduced quickly after interventions were introduced, it is not possible to say how long the plan needs to be continued, what components need to be left in place, and what supports for the child can be faded. At the beginning of this study, every teacher asked how long it would take to help or "fix" the child's challenging behavior, but the answer remains "as long as it takes." Future research should address questions of how practitioners know when they can begin removing supports. For example, Terrell's teacher reported anecdotally that he needed less support to transition to circle and participate appropriately as the study progressed. Because the plan needed to be implemented at a high level of fidelity until data collection ended, one cannot say from these results what he would or would not have needed in terms of support after the plan had been in place for several weeks. While he (and the other child participants) all seemed to need less intensive support as the study progressed, it is still likely that they would continue to need individualized attention and support for a

sustained period of time in order to maintain reductions in challenging behavior. Future research should also address the issue of maintenance as it relates to the components of behavior support interventions. If a child who is exhibiting challenging behavior is not taught a replacement skill as part of the intervention, will behavior changes maintain? In the absence of a replacement skill, changes in the environment are likely maintaining the behavior change (i.e., changes in antecedents and consequences). If this is the case, these modifications might need to stay in place indefinitely if the child has not been taught a new skill.

A final consideration for future research is how these findings contribute to the body of knowledge on tiered models of intervention, such as the Teaching Pyramid, and what questions remain. Children with ongoing and persistent challenging behavior require interventions that are individualized to specific situations and needs (i.e., tier 3 interventions) (Hemmeter et al., 2006). However, it is still unclear who exactly these children are: which children need tier 2 and tier 3 interventions—what do they have in common, and how do they differ? As discussed earlier, it is possible that the children in this study were not actually "top of the Pyramid" children who needed tier 3 support. Relatedly, how do practitioners determine which children need the supports provided in tier 3? An essential feature of tiered approaches is a hierarchy of increasingly intense interventions that includes a process of identifying and assisting children needing additional intervention (Coleman, Buysse, & Neitzel, 2006; Fox, Dunlap, Hemmeter, Joseph, & Strain, 2003). This is especially challenging in the face of the knowledge that most teachers are not fully implementing the universal and targeted strategies at the lower tiers. Furthermore, the effects of good tier 1 intervention on all children are not known. In

sum, evidence from studies on individualized behavior support interventions indicates that they are effective in reducing children's challenging behavior in targeted activities in classroom settings. It is not yet fully understood who these children are, how teachers or programs would determine which children would need support at this level (i.e., beyond tier 2) in the context of a response-to-intervention (RTI) framework, how programs would build systems to support teachers in learning about, designing, implementing, and monitoring tier 3 interventions, and the components of the interventions that are necessary to provide lasting behavior change.

Table 1

Child Participant Characteristics

Child	Gender	Race	Age	Disability status	Program type
Jennie (Study 1)	Female	Caucasian	4 years, 4 months	No IEP	Private childcare
Terrell (Study 1)	Male	African-American	5 years, 3 months	No IEP	Community Pre-K
James (Study 2)	Male	Caucasian	4 years, 8 months	Autism	University childcare

Note. Ages listed are child ages upon enrollment in the studies.

Table 2

Battelle Developmental Inventory Developmental Quotient and Percentile Scores by Participant and Domain

Participant	Adaptive		Personal-Social		Communication		Motor		Cognitive		BDI-2 Total	
	DQ	*%ile*	*DQ*	*%ile*	*DQ*	*%ile*	*DQ*	*%ile*	*DQ*	*%ile*	*DQ*	*%ile*
Jennie (Study 1)	91	27	83	13	110	75	95	37	98	45	93	32
Terrell (Study 1)	95	37	65	1	63	1	80	9	57	.2	59	.3
James (Study 2)	64	1	86	18	55	.1	65	1	55	.1	57	.2

Note. DQ refers to BDI-2 Developmental Quotients. Developmental Quotients below 70 are two standard deviations below the mean of 100 (SD = 15).

Table 3

Overview of Target Activities and Behaviors by Child

Child	Activity	Target behavior	Specific examples
Jennie (Study 1)	Transitions	Noncompliance (e.g., physical or verbal resistance, not following directions)	Not cleaning up, yelling "no!," ignoring teachers
		Aggression (physical or verbal)	Hitting, yelling at peers, kicking teacher
		Tantrum behavior	Throwing self on floor, screaming, crying, flailing/kicking
	Free play (social/ interactive)	Aggression	Hitting, grabbing from another child, forcing a child to do something
		Tantrum behavior	Throwing self on floor, screaming, crying, flailing/kicking
Terrell (Study 1)	Transitions	Noncompliance	Refusing to throw away trash, ignoring directions, doing something else instead
		Resistance/aggression	Saying "no" when given a direction, hitting teacher, pinching peer
	Circle	Physical or verbal resistance/aggression	Flicking, punching, taunting, screaming, yelling
		Touching or talking to another child during group time	Playing with another child's hair, talking when teacher is talking
		Touching off-limits materials	Taking puzzles off shelf, ripping art off wall
		Leaving the group area	Running from carpet to Home Living center
James (Study 2)	Transitions	Noncompliance (e.g., not following directions, verbal resistance)	Not washing hands, not going to carpet, going to another area of the classroom, yelling "no!" when given a direction
		Tantrum behavior	Yelling, screaming, crying, falling to floor
	Circle	Noncompliance (e.g., not following directions, verbal resistance)	Not going to circle area, going to another area of the classroom, touching off-limits materials, lying on floor
		Tantrum behavior	Yelling, screaming, crying, falling to floor
	Small group	Noncompliance (e.g., not following directions, verbal resistance)	Not coming to small groups, going to another area of the classroom
		Tantrum behavior	Yelling, screaming, crying, falling to floor

Table 4

Behavior Support Intervention for Jennie (Transition)

Strategies	Examples
PREVENT interventions	
1. Provide precorrections (positive attention).	1. Remember, we're going to clean these up before we go to another center.
2. Individualized transition warnings	2. [Child], in 5 more minutes we're going to clean up and go to circle. May talk through steps of transition
3. Provide choices	
a) where to put preferred items so they are "safe"	a) We need to put the crown away for circle. Do you think it will be most safe in your cubby or up here? (child chooses where to put away)
b) how to clean up/transition	b) We're going to clean up Home Living. Do you want to pick up the food or the clothes? Which ones should I pick up to help? Should we walk or skip to circle time?
REINFORCE interventions	
1. "Catch child being good." Provide positive attention and praise for desired behavior. This should be high rate.	1. Thank you so much for cleaning up with me. High five!
2. Withhold/minimize attention for challenging behavior.	2. Flat affect, minimal eye contact/verbal response

Table 5

Behavior Support Intervention for Terrell (Transition)

Strategies	Examples
PREVENT interventions	
1. Provide direct transition warnings with the steps and expectations of cleaning up.	1. In 4 more minutes, we're going to put the blocks away on the shelf and then walk to circle.
2. Provide choices	2. It's time to clean up! Would you like to do the blocks or the cars? Which one should I do? Should we boogie or "swim" to circle?
3. Incorporate appropriate physical movement	3. Dynamic ways to move across the room that are safe. Starting circle with "wiggle time"
REINFORCE interventions	
1. Follow through with stated demands and intentions	
a) Make sure the scheduled event (e.g., circle, outside) *does* happen and in a timely way	a) Begin circle on time, even if not all children are present. Use strategies to avoid wait time
b) Ensure task demand is not removed after non-compliance	b) We're not going over there. First, we're picking up the blocks, then we're going to circle
2. Provide positive attention for following directions/engaging appropriately	2. You're such a good helper when you clean up the library! High five!
3. Use helper role contingent on *desired* (not undesired) behavior	3. (can also be a prevention strategy) (We're cleaning up in 5 minutes) Would you like to be a helper? What's your job going to be? You cleaned up Home Living so fast you're already done! Awesome job! Now would you like to be a circle helper?

Table 6

Behavior Support Intervention for Terrell (Circle)

Strategies	Examples
PREVENT interventions	
1. Modify seating arrangement; boundary identification (if needed). Child is seated in close proximity to an adult.	1. A picture of the child with a masking tape border will be affixed to the rug near the teacher. Teacher may sit on the floor instead of in chair. Assistant will maintain proximity to child
2. Provide choices	2. Ask the child what song he would like to sing next
3. Plan engaging activities	
4. Keep circle under 20min	
REINFORCE interventions	
1. Provide positive attention	
a) contingent on compliance with behavior expectations	a) Thanks for choosing a song! You're an awesome circle helper.
	b) I like the way [child] is sitting and listening. Thumbs up to you!
b) noncontingent (i.e., when child is engaged in group and not exhibiting challenging behavior)	

Table 7

Behavior Support Intervention for James (Transition)

Strategies	Examples
PREVENT interventions	
1. Child is provided with individual warnings prior to transitions	1. [Child], in 2 minutes we are going to get your chair and go to circle.
2. First/then statements are used to explain the sequence of the transition and access to a reinforcer toy	2. First, put the beanbag away. Then you can get your chair and choose your toy.
REINFORCE interventions	
1. Child brings own chair to circle	1. Get your chair and come choose a spot!
2. Child chooses toy to hold while sitting at circle	2. When you are sitting down, you can choose a toy to hold.
3. Provide positive attention and praise for completing sequence	3. Especially physical attention—high five, pat on back, etc.

Table 8

Behavior Support Intervention for James (Circle)

Strategies	Examples
PREVENT interventions	
1. A visual circle schedule will help the TC (and all children and adults) adhere to the sequence of circle time.	
2. When possible, TC will be given an active helper role to maintain engagement	2. E.g., holding helper job chart
3. Circle time will be limited to 20 minutes	
4. The child will be allowed to hold a toy of his choice (non-distracting) during circle	
REINFORCE interventions	
1. If the child asks for a break or early release, it will be granted contingent on appropriate behavior	
2. If the child would like to switch the toy during circle, another choice will be provided	
3. Positive attention will be provided for compliance and/or helper role	
4. Child will replace his chair at the end of circle	

Table 9

Behavior Support Intervention for James (Small Groups)

Strategies	Examples
PREVENT interventions	
1. Child will be given a helper role to begin small group	1. Child will be asked to take a necessary supply (e.g., crayons) to his small group area.
2. Child is provided with meaningful choices throughout the activity	2. The child can choose where to start, how to play, etc.
3. A visual schedule for the small group rotation will be presented, so the child knows the sequence of small groups	
REINFORCE interventions	
1. If the child asks for a break or early release, it will be granted contingent on appropriate behavior	
2. Adult will provide frequent positive comments when child is engaged appropriately	
3. Adult modifies instruction or activity when a majority of children in the small group are no longer engaged	

Table 10

Pre and Post TPOT Scores by Classroom

	Pre			Post		
Classroom	Number of red flags	% of Indicators on Items Related to Preventive Practices	% of total TPOT indicators	Number of red flags	% of Indicators on Items Related to Preventive Practices	% of total TPOT indicators
1 (Jennie's)	3	46.15%	33.90%	0	53.85%	54.13%
2 (Terrell's)	5	20.51%	24.58%	1	48.72%	39.83%
3 (James's)	1	56.41%	49.15%	-	-	-

Note. The total number of possible red flags was 16. The total number of possible Preventive Practices items was 39. The total possible number of TPOT practices items was 108. No post-intervention TPOT was completed in James's classroom due to the end of the school year.

Table 11

Treatment Fidelity IOA for Study 1 by Child, Activity, and Phase

Child	Target activity	Baseline			Intervention		
		Mean % IOA	Range	Number (%) of sessions with IOA	Mean % IOA	Range	Number (%) of sessions with IOA
Jennie	Transition	88	-	1 (25)	100	-	5 (38)
	Centers	100	-	4 (50)	x	x	x
Terrell	Transition	100	-	1 (25)	100	-	4 (22)
	Circle	97.6	83.3-100	8 (38)	100	-	1 (33)

Note. A – indicates that no range was present because all sessions had the same value or there was only one session. An x indicates that intervention was never implemented in the activity.

Table 12

Percent IOA on Challenging Behavior Measure by Child, Activity, and Phase for Study 1

Child	Target activity	Baseline			Intervention		
		M	Range	Number (%) of sessions with IOA	*M*	Range	Number (%) of sessions with IOA
Jennie	Transition	84.9	75-94	2 (50)	100	-	4 (31)
	Centers	93.9	75.4-100	4 (50)	x	x	x
Terrell	Transition	73.7	-	1 (25)	93.2	75-100	5 (26)
	Circle	90	83.7-100	8 (38)	100	-	1 (33)

Note. A – indicates that no range was present because all sessions had the same value or there was only one session. An x indicates that intervention was never implemented in that activity.

Table 13

Treatment Fidelity IOA for Study 2 by Child, Activity, and Phase

		Baseline			Intervention		
Child	Target activity	Mean % IOA	Range	Number (%) of sessions with IOA	Mean % IOA	Range	Number (%) of sessions with IOA
	Transition	100	-	2 (50)	96.7	83.3-100	5 (29)
James	Circle	100	-	2 (22)	97.1	85.7-100	5 (42)
	Small groups	100	-	3 (23)	91.7	83.3-100	2 (40)

Note. A – indicates that no range was present because all sessions had the same value.

Table 14

Percent IOA on Challenging Behavior Measure by Child, Activity, and Phase for Study 2

		Baseline			Intervention		
Child	Target activity	M	Range	Number (%) of sessions with IOA	M	Range	Number (%) of sessions with IOA
	Transition	100	-	1 (25)	92	60-100	5 (29)
James	Circle	100	-	2 (22)	99.7	98.9-100	5 (42)
	Small groups	100	-	3 (23)	99	98-100	2 (40)

Note. A – indicates that no range was present because all sessions had the same value or there was only one session.

Table 15

Social Validity

Questionnaire item	Mean	Minimum	Maximum
1. Using the behavior support plan was easy to do.	3.33	3	4
2. I see <u>fewer</u> challenging behaviors during the targeted activities since starting to use the practices.	3.67	3	4
3. It did <u>not</u> take a lot of time to learn how to use practices to encourage appropriate behaviors.	3.00	2	4
4. The training was effective and easy to understand.	3.33	3	4
5. It did <u>not</u> take too much time to use practices with the target child.	3.00	2	4
6. I would recommend using these practices to another teacher.	3.67	3	4
7. The observers were unobtrusive and did not disrupt my classroom day.	3.33	3	4
8. The feedback I received was helpful.	3.67	3	4
9. I would like to receive feedback for other training purposes.	3.33	3	4

Note. Items were scored on a four-point scale. 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree.
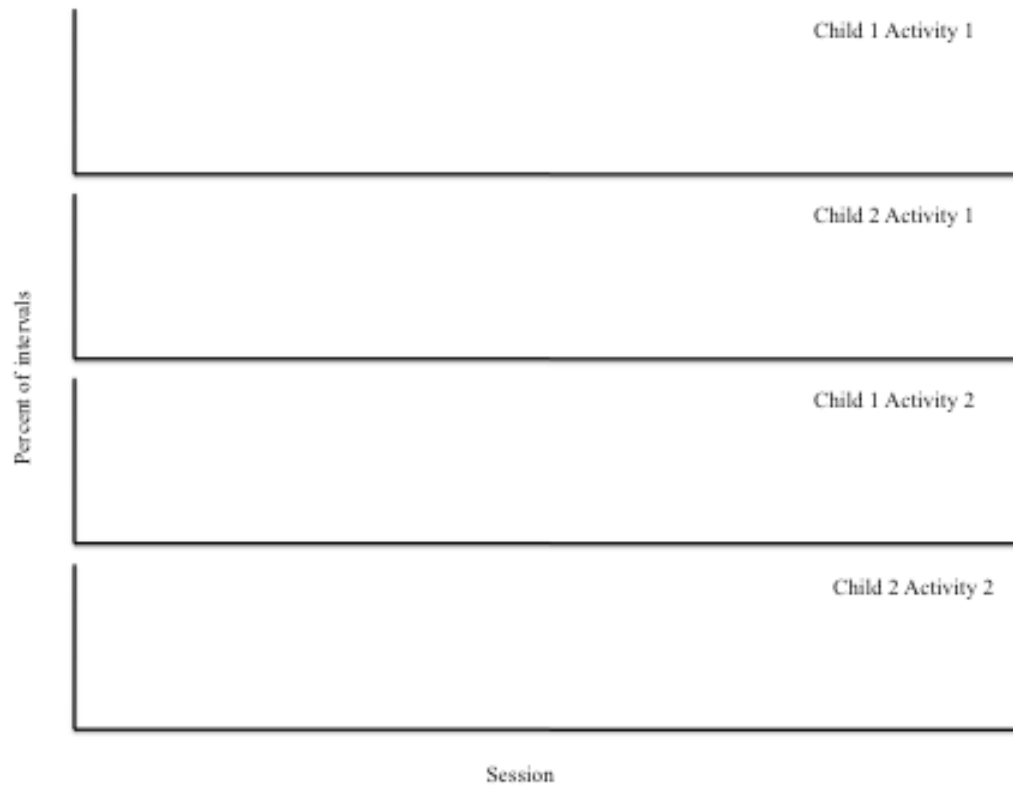
Figure 1. Example figure illustrating the design of Study 1.
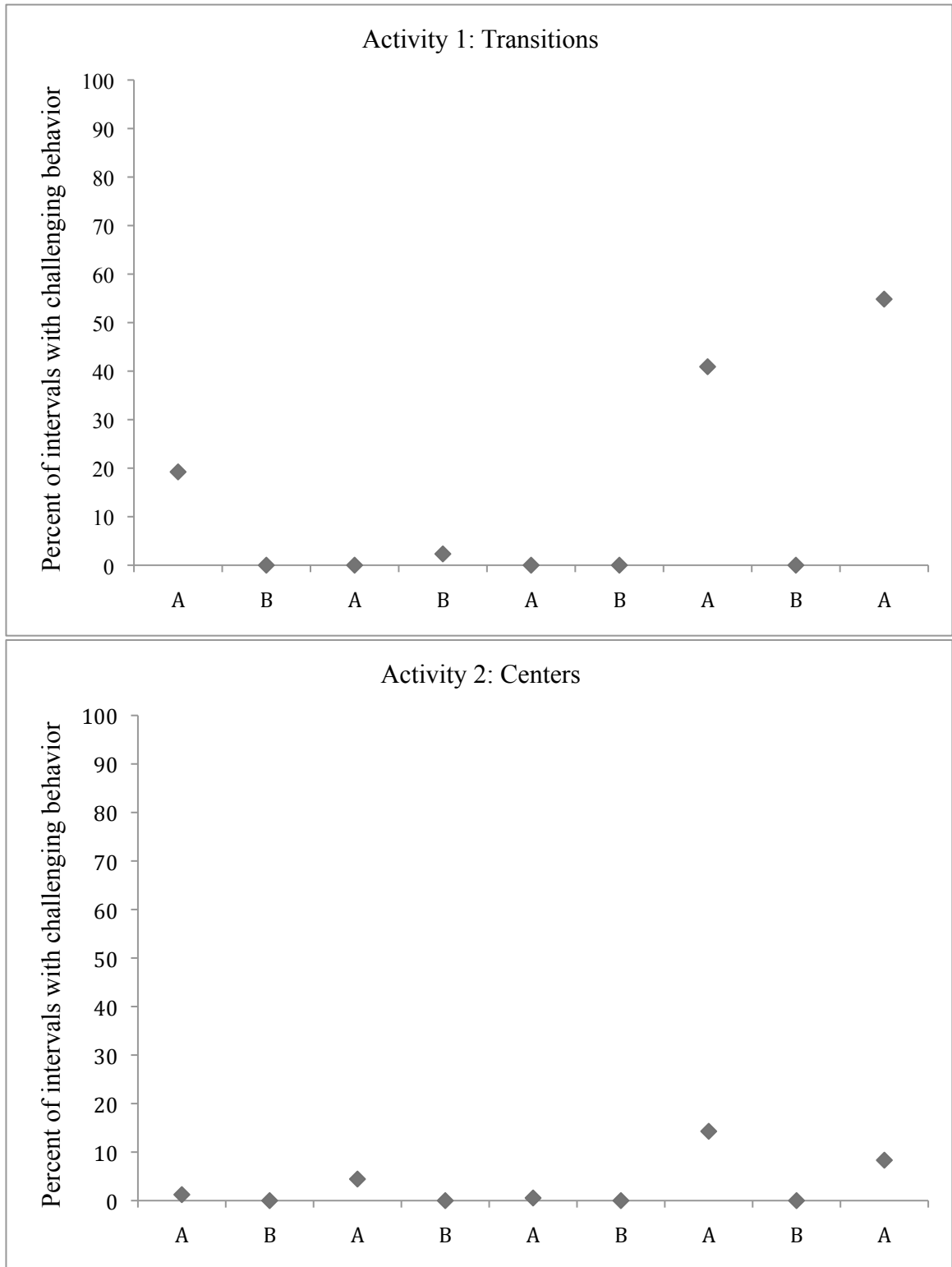
Figure 2. Results of hypothesis testing for Jennie during transitions and centers.
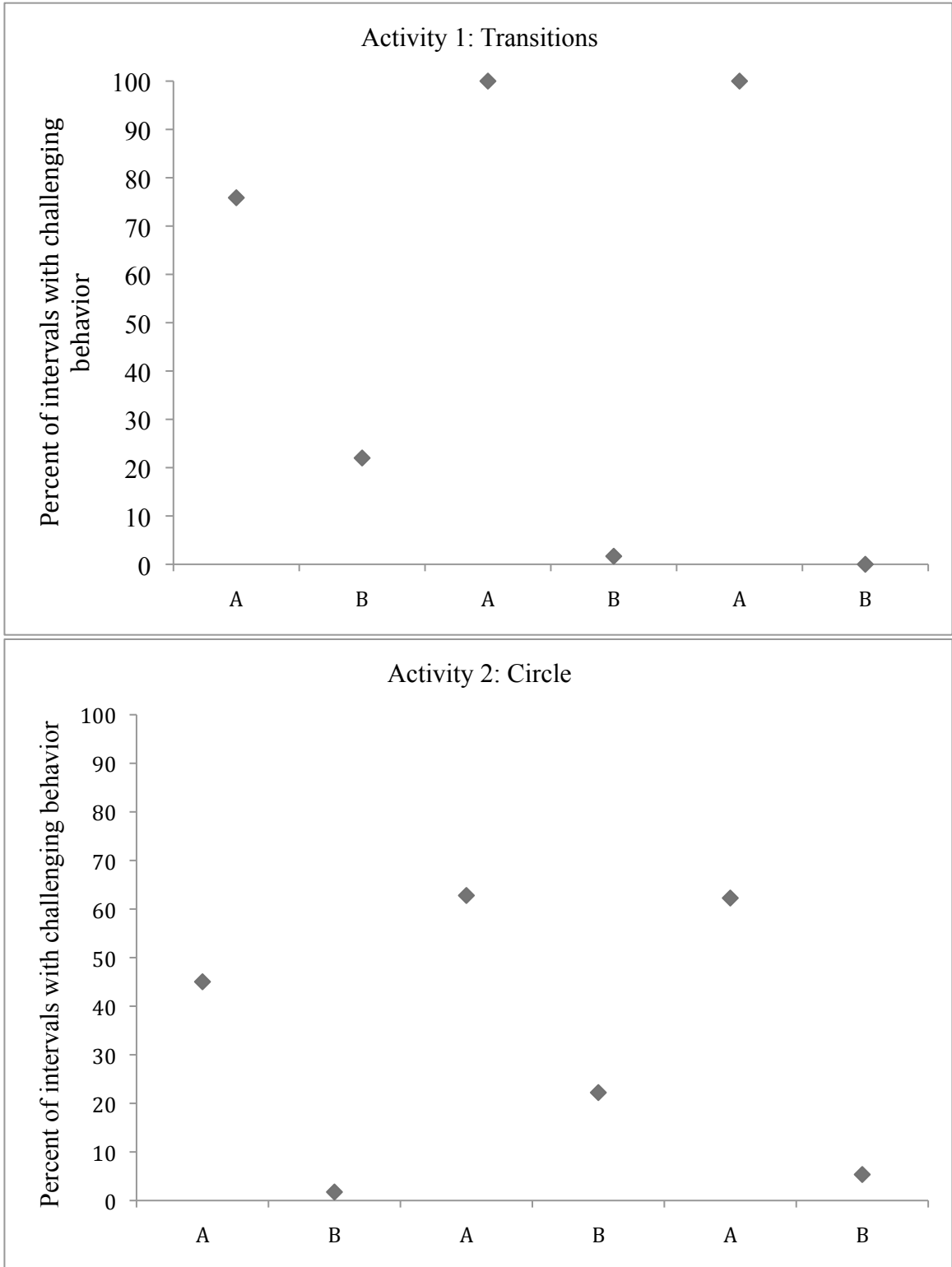
Figure 3. Results of hypothesis testing for Terrell during transitions and circle time.
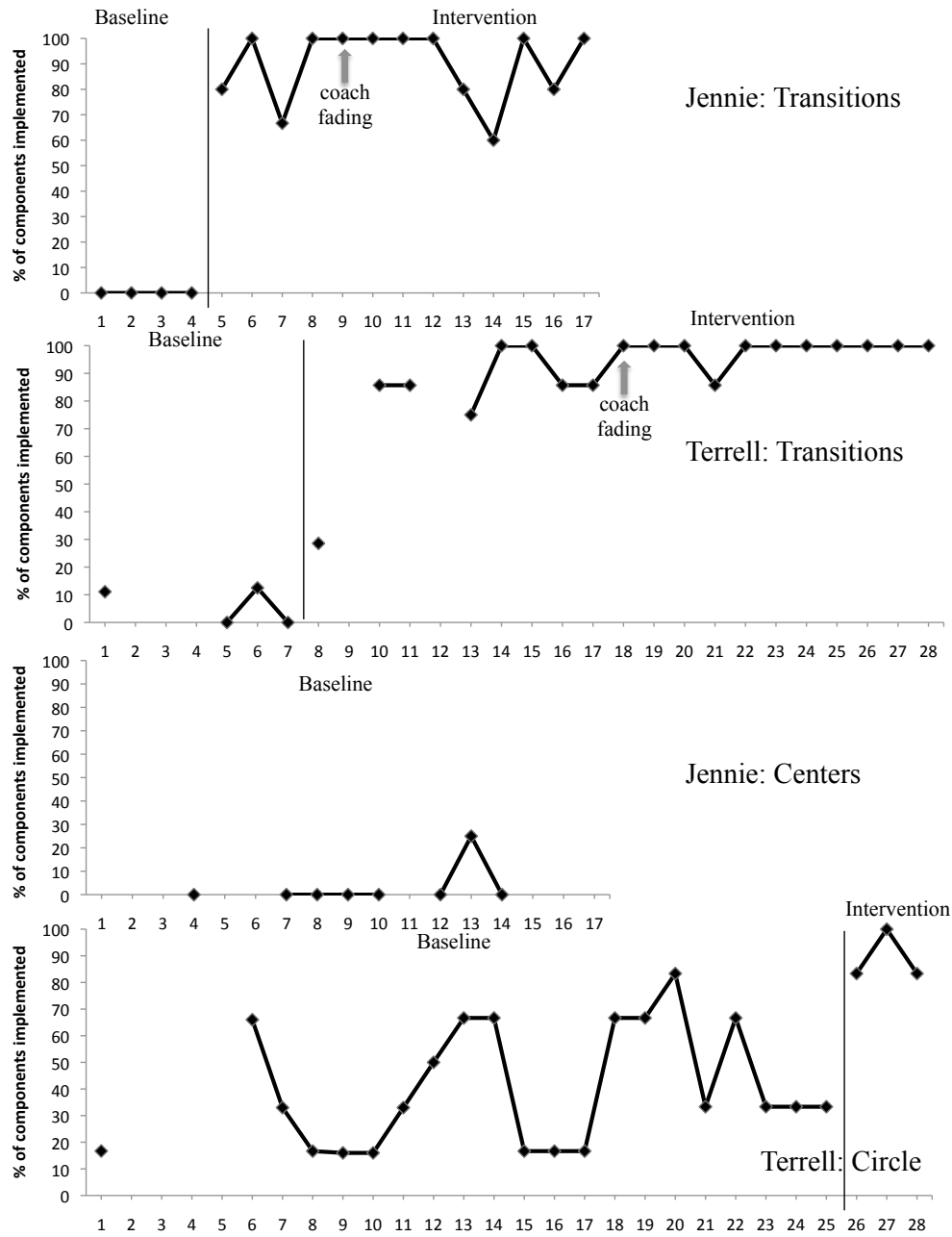
Figure 4. Overall percentage of intervention components implemented in each session in Study 1.
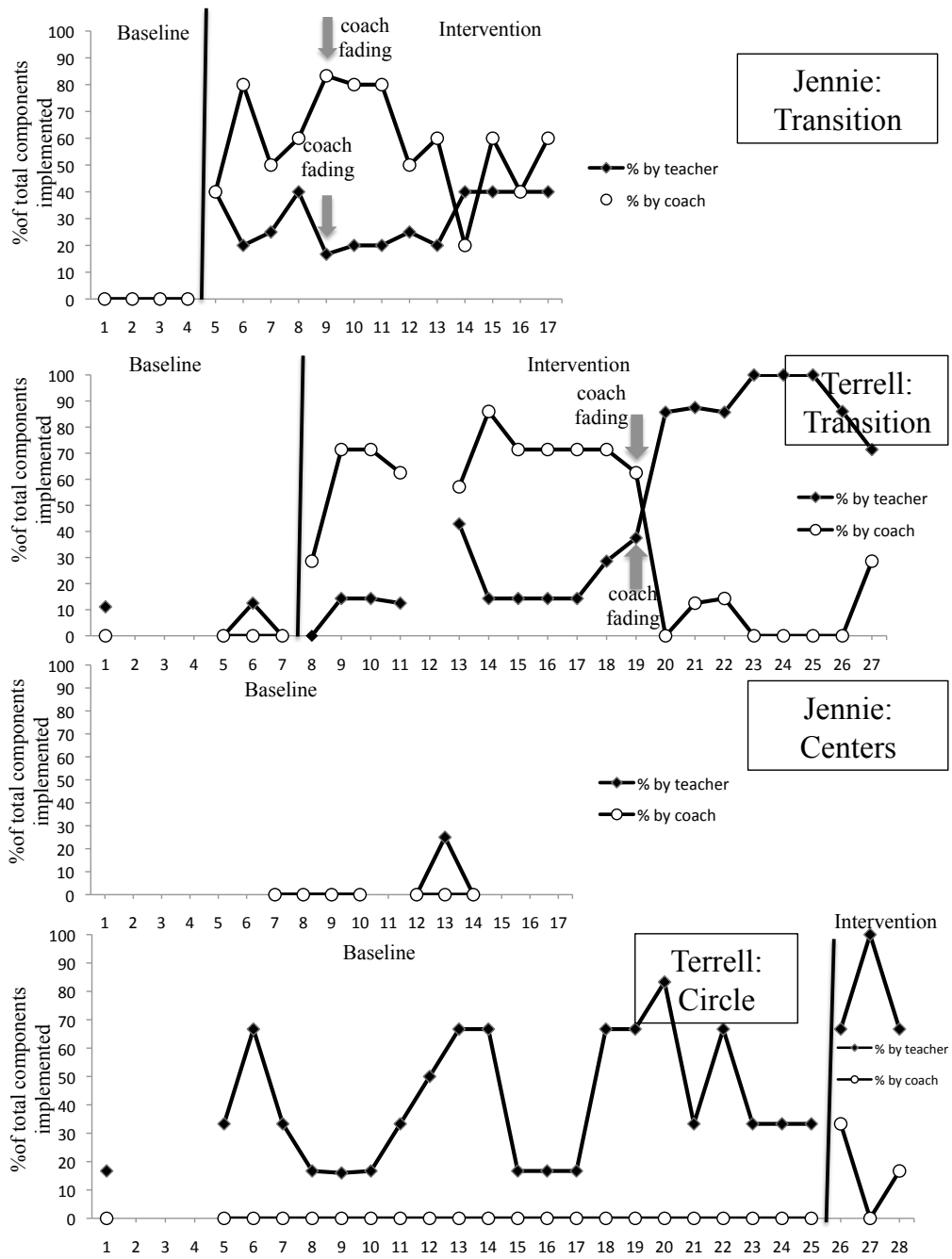
*Figure 5.* Treatment fidelity by implementer in Study 1.
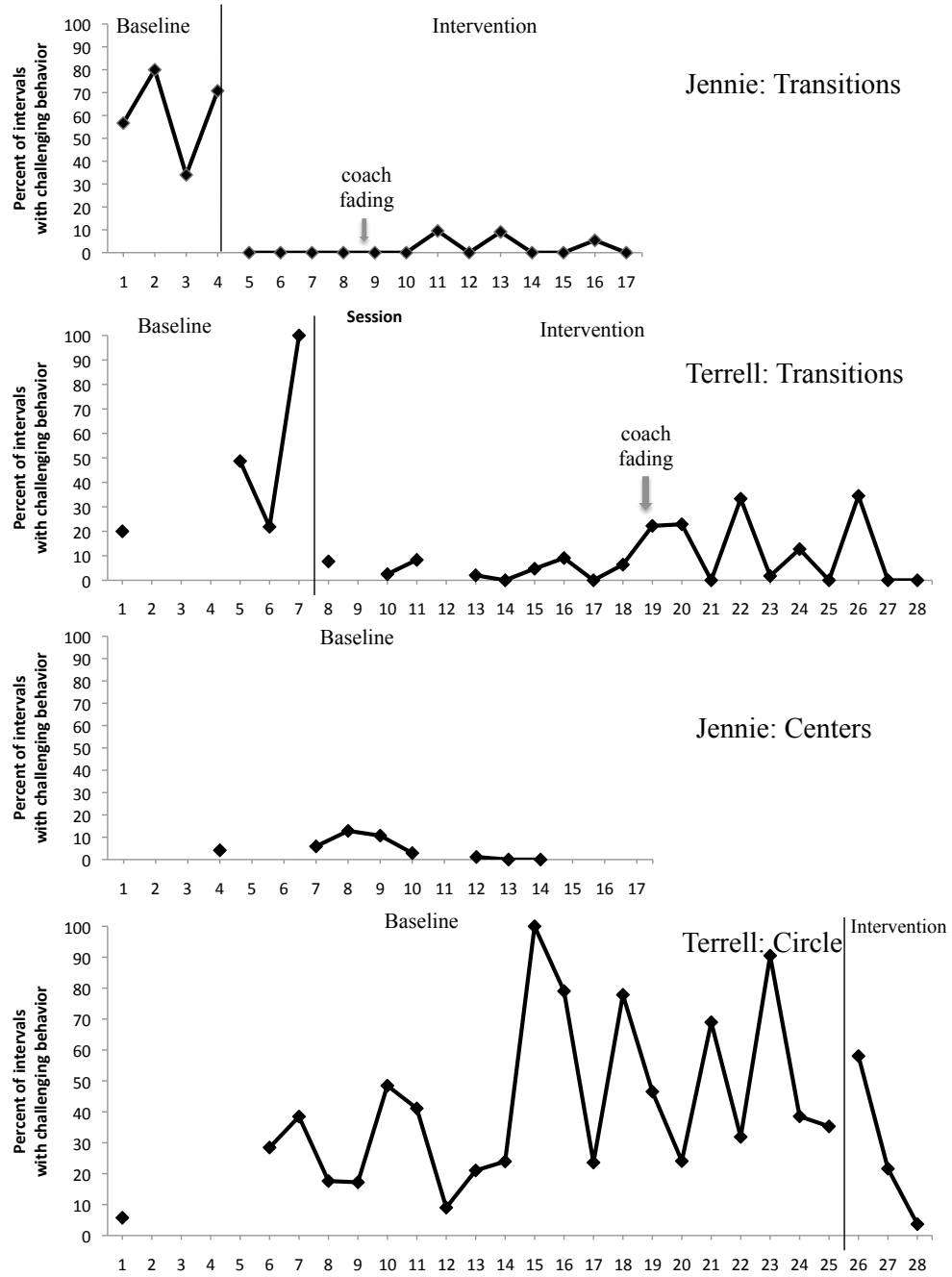
Figure 6. Effects of individualized behavior interventions on % of intervals with challenging behavior for Jennie and Terrell.
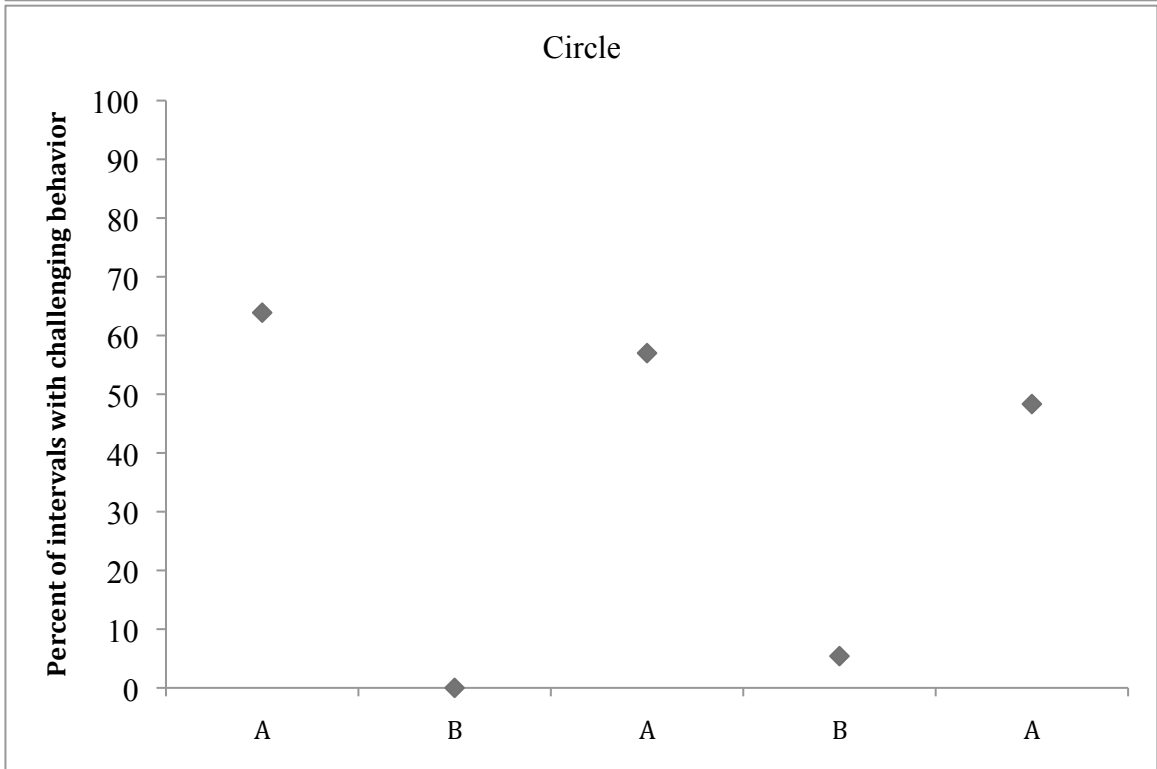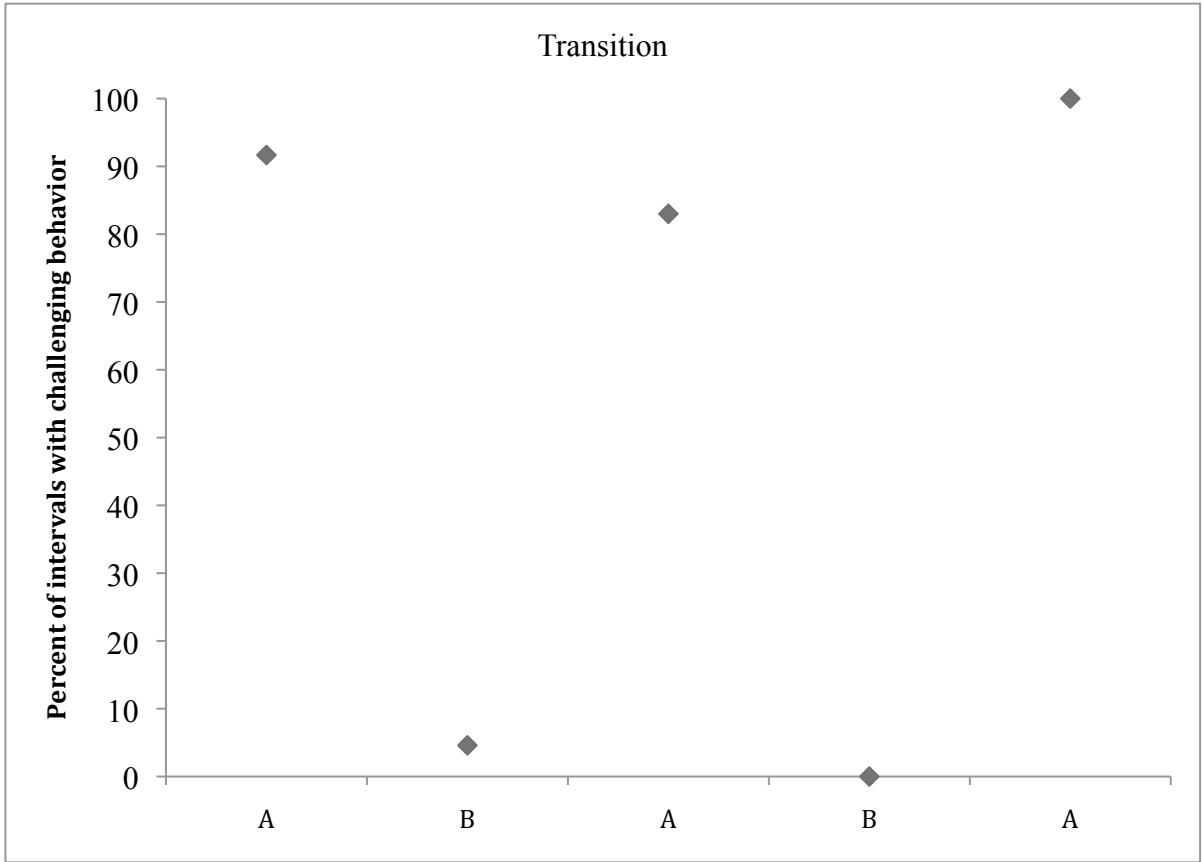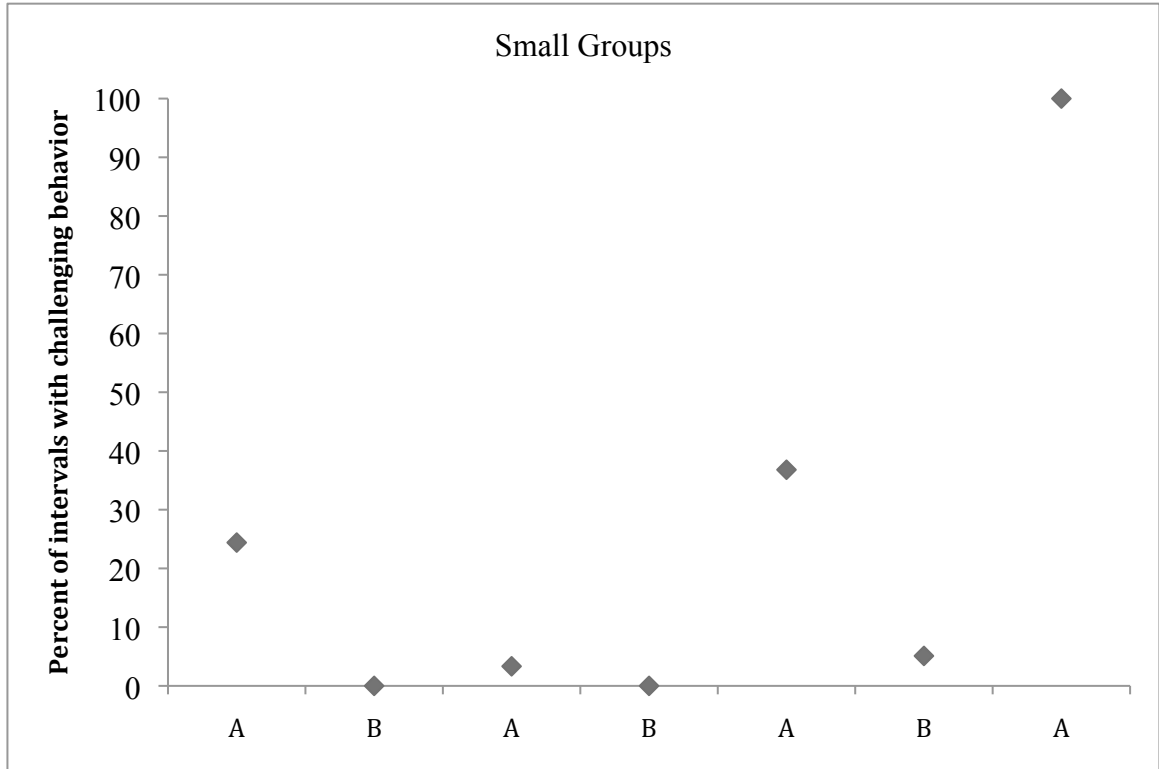
Figure 7. Results of hypothesis testing for James during transition, circle, and small groups in Study 2.
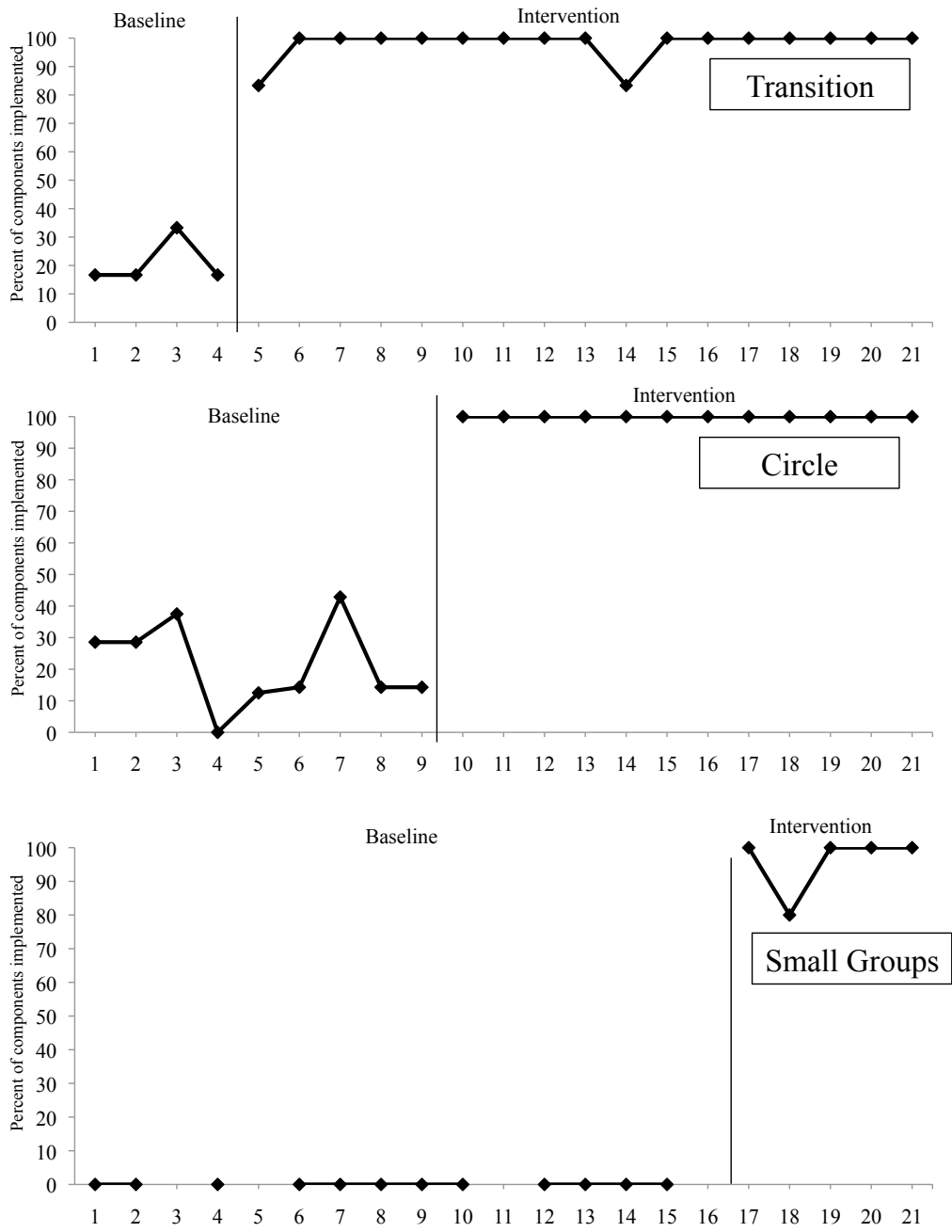
Figure 8. Overall percentage of intervention components implemented in Study 2.
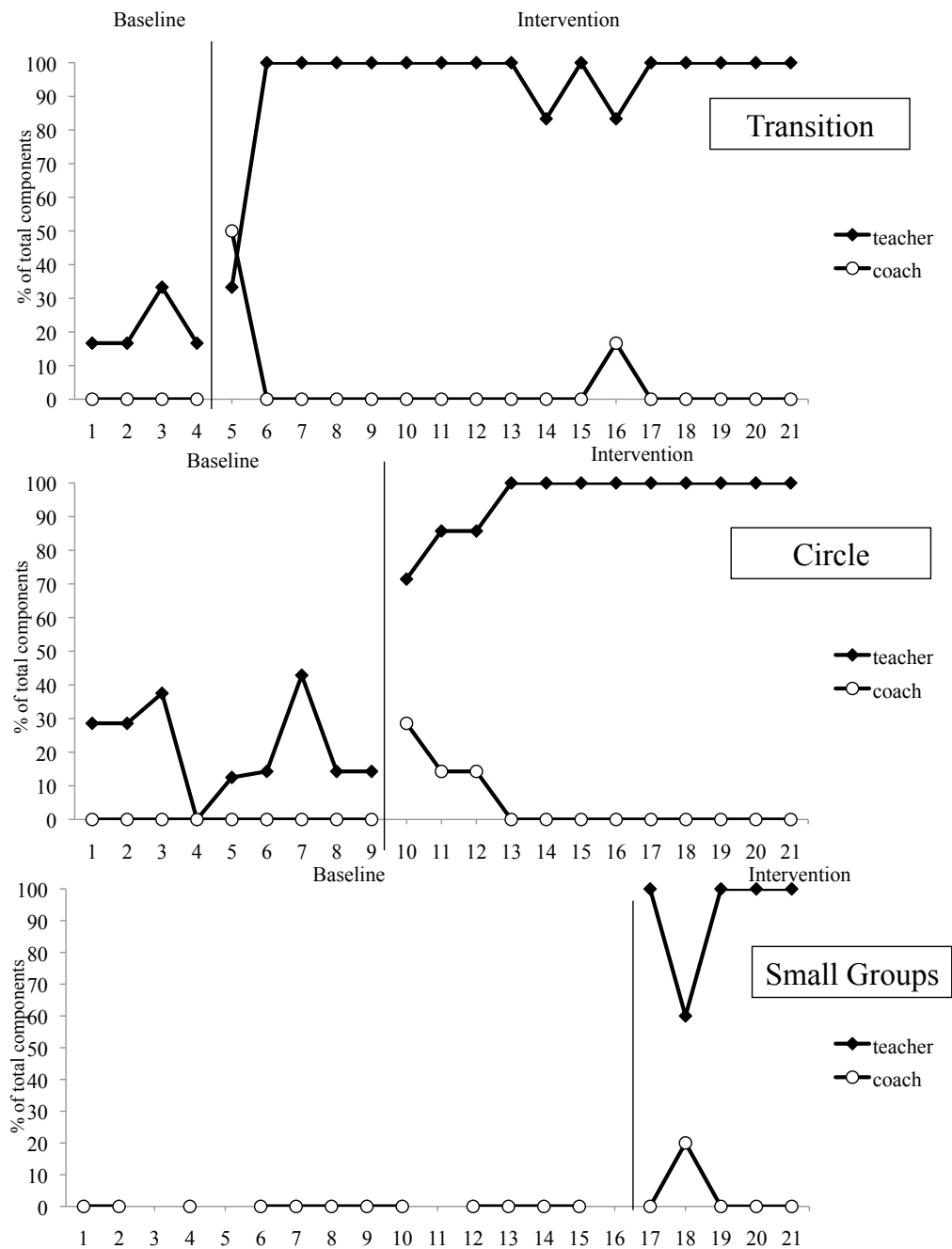
Figure 9. Treatment fidelity by implementer in Study 2.
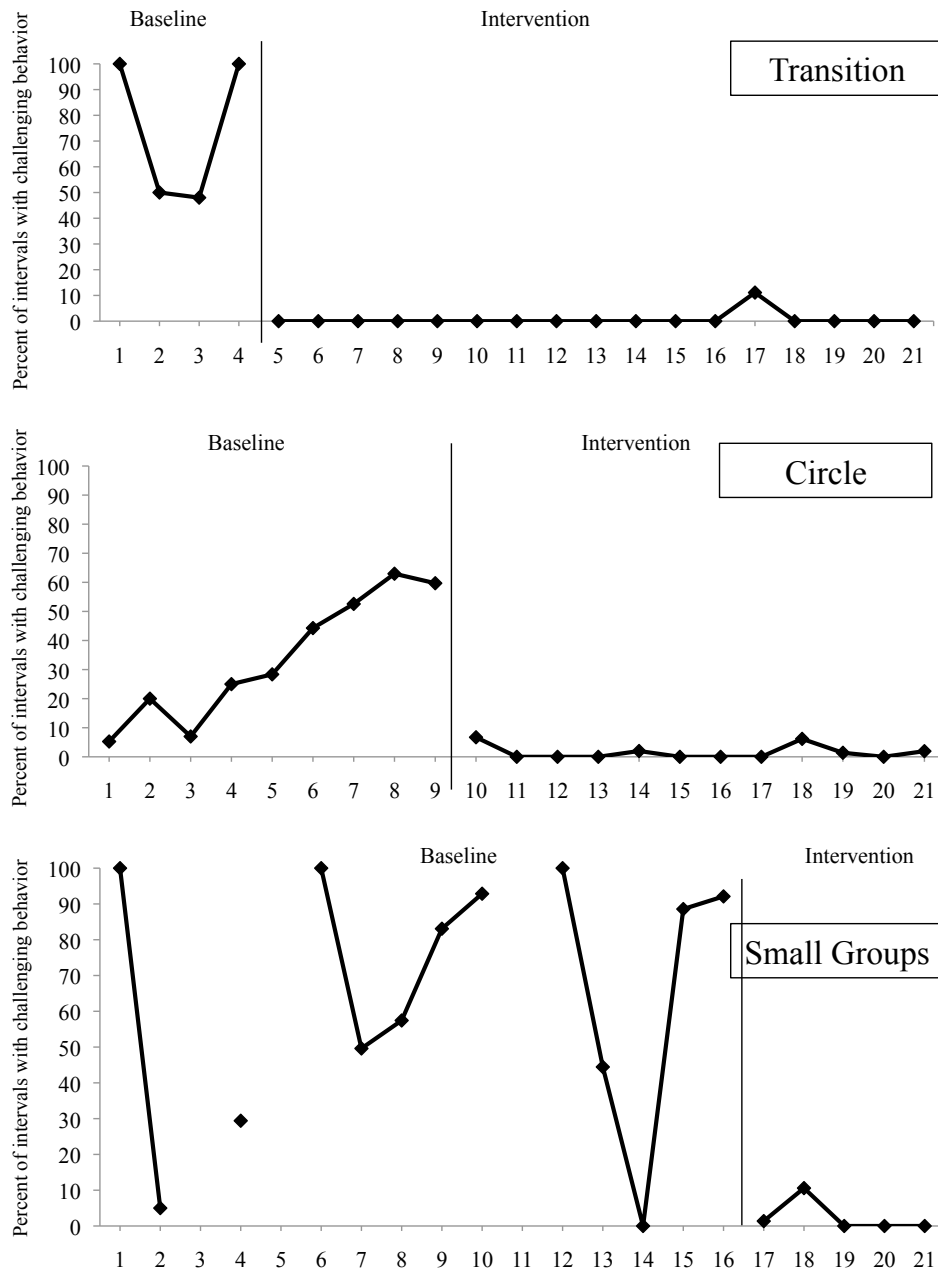
Figure 10. Effects of individualized behavior intervention on % of intervals with challenging behavior for James.

Appendix A
Definitions of Challenging Behavior

Child Behavior

Challenging Behavior is defined as a behavior that: (a) impedes the completion of activities or routines for a child or children, (b) is disruptive to instruction or classroom activities or routines, (c) interferes with a child's interactions with teachers, peers or materials, or (d) is harmful to self, others, or property.

Challenging Behaviors can be categorized as low intensity or high intensity.

Low intensity challenging behaviors are those behaviors that distract a target child, peers, or a teacher from typical activities, routines, or instruction. After low intensity challenging behavior has occurred, the routine, activity, or instruction continues with minimal adult intervention. Low intensity challenging behaviors generally cause no physical harm to people or property.
Examples of ***low intensity*** challenging behaviors include:
- ❑ Not following instructions or specific rules after a reminder (teacher tells the child to walk in the classroom, and the child still runs)
- ❑ Not responding to a direction to start or end a behavior
- ❑ Talking to a peer inappropriately (loudly or at a time when talking is not permitted) during group instruction
- ❑ Taking a toy from another child
- ❑ Laying on the floor when children are expected to sit
- ❑ Wandering around the room not engaged in a planned activity or routine
- ❑ Touching others when not part of planned activity or routine (sitting too close during circle time, tapping a peer's head when in line, touching a peer's hair during circle time)
- ❑ Name calling or brief episodes of verbal teasing. Any instance of threats or profanity are coded as *high intensity* .
- ❑ Nonverbal teasing or taunting (sticking out one's tongue,)
- ❑ Accessing off-limits materials: picking up a teacher's book, turning on the cassette player when not part of activity or routine, going to a closed center, opening a filing cabinet
- ❑ Not joining planned activities and routines following adult, peer, or environmental prompt(s)/initiations
- ❑ Clings to parent or teacher
- ❑ Whines or complains [but not loudly - at a "normal" or acceptable volume]
- ❑ Restless, fidgeting. *This may include playing or fidgeting with articles of clothing such as untying shoes, taking off socks, playing with barrettes or ponytail holders, or imposing on other peer's*

space, such as when a child is moving, rocking or scooting back and forth during circle time, impeding on another child's physical space or moving outside of implicit physical boundaries without specific intent to elope.

❑ Self stimulatory behaviors that are not disruptive but are distracting. *It is important to note that we are not coding self-stimulatory behaviors for the sake of coding self-stimulatory behaviors. They must be behaviors that distract the child, a peer, or the teacher from the routine or activity (e.g, rocking back and forth, making noises with the hands or mouth). We would not code a child sucking on his hand repetitively if he was attending, seated, and following directions. We would code it if the child's repetitive behavior required adult attention.*

High intensity challenging behaviors disrupt the flow of classroom activities and routines. These behaviors include verbal threats, aggression and profanity, as well as behaviors that can cause harm. Adult intervention is necessary to prevent physical harm to people or materials/property or to continue with classroom routines and activities.

Examples of high intensity challenging behavior include:

❑ Physical aggression that includes hitting, scratching, biting, or kicking; using objects to hit others; throwing things at another person.

❑ Physically pulling away from a teacher when she/he is providing physical guidance

❑ Forceful use of materials (throwing objects, even if not at a person)

❑ Verbal aggression that includes bullying, taunting, threatening, or intimidating a peer or adult

❑ Verbal outbursts that include crying, yelling, or whining loudly [at an inappropriate volume], profanity, or verbal resistance ("No!", "Shut up.").

❑ Tantrums: combination of crying, falling to floor, flailing limbs, stomping feet, physical resistance

❑ Property or material destruction

❑ Elopement: leaving an area without permission, running to another part of the room without permission, leaving the classroom without permission, hiding or attempting to hide inside or underneath furniture

❑ Inappropriate touching: touching or attempting to touch one's self or another person in a way that may violate personal boundaries or be construed as sexual contact (i.e., masturbation, touching another's private parts, pulling down or attempting to pull down clothing, licking or attempting to lick others).

❑ Stripping: removing articles of clothing during class time

- ❑ Self stimulatory behaviors that are loud, intense and disruptive (e.g., loud noises, twirling around when supposed to be sitting, etc.)
- ❑ Self-injurious behavior (e.g., banging head, hitting self, picking at skin)

Teacher Training Fidelity Form

Teacher ID: _____   Coach ID: _____

Tier #: _____   Session date: _____

Date fidelity completed: _____   Fidelity coder ID: _____

Reliability: ☐ Yes ☐ No   Reliability coder ID: _____

Training Components	Yes	No	N/A	Notes
Delivery of Content				
1. The coach provided the teacher with a copy of the PowerPoint slides.			▓	
2. The coach delivered a PowerPoint presentation in a one-on-one setting with the teacher/staff.			▓	
Presentation of Relevant Information				
3. Reminder of how individualized interventions fit in with the Teaching Pyramid Model.			▓	
4. Discussion of plan development (hypothesis testing, conversation)			▓	
5. Framework for behavior support plan (PTR approach).			▓	
6. Presentation of PREVENT strategies, with examples.			▓	
7. Discussion of TEACH strategies.			▓	
8. Ideas for REINFORCE strategies with examples.			▓	
9. If necessary, further discussion about individualizing for this child.				
10. Identifying supports staff need to implement plan.			▓	
Individualizing for the Teacher				
11. The coach prompted the teacher to think about how the content applied to her classroom.			▓	
12. Together, the coach and teacher brainstormed possible ways the teacher could implement the strategies presented in the training in her classroom.			▓	
Checking In				
13. The coach asked the teacher if he or she had any questions about the training materials.			▓	
14. The coach answered any questions.				

Appendix C
Feedback Fidelity Form

Check the box if the item was present; mark 0 if it was not.

Opening the Meeting	
Coach checks in with teacher and asks how things are going	
Supportive feedback	
Coach shows teacher graphs or other data from behavioral observations	
Feedback is positive and focused on strength and growth	
Corrective feedback	
Coach suggests strategies to implement in future session(s)	
Targeted Support	
If needed, coach and teacher discuss any issues related to individualization and/or supports for the target child	
Planned Actions	
Teaching: Coach gives examples, materials, or other access to information that might help the teacher with implementation or supporting the target child	
Scheduling: Upcoming observations and sessions are planned or confirmed	
Coach asks teacher if s/he has any questions	
Total items present	

% of items implemented: _____

Notes:

Appendix D
Treatment Fidelity Forms – Jennie

Intervention Fidelity Checklist – Transitions

Teacher & Child ID: _____JL 01_____ Coach ID: _____

Observation date: _____ Data collector ID: _____

Observation beginning time: _____ Observation ending time: _____

Number of adults present: _____ Number of children present: _____

Reliability ☐ Yes ☐ No Other data collector ID: _____

Condition: ☐ Baseline ☐ Intervention ☐ Maintenance ☐ Generalization

Tier: ☐ Tier A ☐ Tier B

Directions: Mark √ if indicator is present and 0 if it is not.

Activity	Time	Activity	Time

1T1	A whole-class warning is provided prior to transition	Teacher☐	Coach☐

Requirements: Teacher must provide a whole-class warning for every transition. If the class is transitioning from circle and a whole-class warning is not appropriate, write N/O in the box.

1T2	The target child is provided with a direct warning prior to transition	Teacher ☐	Coach ☐

Requirements: At least one direct warning must be provided.

1T3	The child is provided with choices embedded within the transition	Teacher ☐	Coach ☐

Examples: the child can choose which items to clean up, how to move to circle, whether to walk alone or with a friend, etc.
Requirements: At least one choice must be provided within the transition

1T4	Behavior precorrections are provided prior to the transition	Teacher ☐	Coach ☐

Examples: Remember, we will need to put away this food before we go to circle time.
Requirements: There must be at least 1 example per transition.

1T5	If a social problem arises, an adult supports the target child in finding an appropriate solution (e.g., by using the Solution Kit)	Teacher ☐	Coach ☐

If no problems arise, mark N/O.

1T6	If the child begins to escalate emotionally, she is helped to calm down and/or talk about her feelings with the "Tucker Turtle" steps.	Teacher ☐	Coach ☐

If this is not relevant, write N/O in the box.

1T7	Positive, descriptive praise is provided to the child for engaging in the transition appropriately	Teacher ☐	Coach ☐

Requirements: There must be a minimum of 3 positive descriptive praise statements.

125

Tally:

1T8	Child does not receive attention for failure to comply (e.g., adult ignores child or communicates minimally with flat affect and no eye contact)	Teacher ☐	Coach ☐

If child complies, mark N/O.

TEACHER indicators present: _____   TEACHER indicators possible: _____   % of indicators present: _____

COACH indicators present: _____   COACH indicators possible: _____   % of indicators present: _____

TOTAL indicators present: _____   **TOTAL** indicators possible: _____   % of indicators present: _____

Intervention Fidelity Checklist – Centers

Teacher & Child ID: <u>JL 01</u>   Coach ID: _____

Observation date: _____ Data collector ID: _____

Observation beginning time: _____ Observation ending time: _____

Number of adults present: _____ Number of children present: _____

Reliability   ☐ Yes   ☐ No   Other data collector ID: _____

Condition: ☐ Baseline   ☐ Intervention   ☐ Maintenance   ☐ Generalization

Tier: ☐ Tier A   ☐ Tier B

Directions: Mark √ if indicator is present and 0 if it is not.

Activity	Time	Activity	Time

1T1	Adult maintains proximity to target child	Teacher ☐	Coach ☐

Requirements: An adult is seated/located near target child and/or between target child and other children for the majority of the interactive play period.

1T2	The child is provided with choices of ways to interact with peers	Teacher ☐	Coach ☐

Example: [Peer] is using the blue paint right now. Would you like to ask her nicely for it, or set a timer to wait for your turn?
Requirements: At least one opportunity must be observed.

1T3	If a turn-taking system is used, the child is supported in walking through the process of requesting a turn and waiting.	Teacher ☐	Coach ☐

If no opportunity, mark N/O

1T4	Child is provided with noncontingent praise for playing with or alongside peers without challenging behavior	Teacher ☐	Coach ☐

Examples: Adult says, "Everyone is working so hard at being friends over here! Good job, [TC]." "You guys should give each other high fives for playing so nicely in home living."
Requirements: There must be at least 3 examples.

1T5	If a social problem arises, and adult supports the target child in finding an appropriate solution (e.g., by using the Solution Kit)	Teacher ☐	Coach ☐

If no problems arise, mark N/O.

1T6	If the child begins to escalate emotionally, she is helped to calm down and/or talk about her feelings with the "Tucker Turtle" steps.	Teacher ☐	Coach ☐

If this is not relevant, write N/O in the box.

1T7	Positive, descriptive praise is provided to the child for engaging in positive peer interactions	Teacher ☐	Coach ☐

Requirements: There must be a minimum of 3 positive descriptive praise statements.
Tally:

1T8	Child does not receive item (e.g., if she grabs it from another child) after engaging in challenging behavior with a peer.	Teacher ☐	Coach ☐

If child complies, mark N/O.

1T8	Adult attention is withheld from child if she engages in challenging behavior.	Teacher ☐	Coach ☐

Example: if child pulls peer's hair, adult steps between them with back to target child and provides "victim" with attention instead.
If no opportunity, mark N/O.

TEACHER indicators present: _____   TEACHER indicators possible: _____   % of indicators present: _____

COACH indicators present: _____   COACH indicators possible: _____   % of indicators present: _____

TOTAL indicators present: _____   **TOTAL** indicators possible: _____   % of indicators present: _____

Intervention Fidelity Checklist – Transitions

Teacher & Child ID: JO 05   Coach ID: _____

Observation date: _____ Data collector ID: _____

Observation beginning time: _____ Observation ending time: _____

Number of adults present: _____ Number of children present: _____

□

Reliability   Yes   □ No   Other data collector ID: _____

Condition: □ Baseline   □ Intervention   □ Maintenance   □ Generalization

Tier: □ Tier A   □ Tier B

Directions: Mark √ if indicator is present and 0 if it is not.

Activity	Time	Activity	Time

		Teacher	Coac
5T1	A whole-class warning is provided prior to transition	□	□

Requirements: Teacher must provide a whole-class warning for every transition. If the class is transitioning from circle and a whole-class warning is not appropriate, write N/O in the box.

5T2	The target child is provided with a direct warning prior to transition	Teacher ☐	Coach ☐

Requirements: At least one direct warning must be provided.

5T3	The child is provided with choices embedded within the transition	Teacher ☐	Coach ☐

Examples: the child can choose which items to clean up, how to move to circle, whether to walk alone or with a friend, etc.
Requirements: At least one choice must be provided within the transition

5T4	Options for brief, appropriate physical movement are provided during the transition	Teacher ☐	Coach ☐

Examples; the child may hop or "fly" to circle, or the child may do a "wiggle" before sitting on the rug
Requirements: There must be at least 1 example per transition.

5T5	Once the child is seated at the next activity, it (or another engaging activity) begins within 2 minutes (i.e., wait time is under 2 minutes)	Teacher ☐	Coach ☐

Wait time:

5T6	If child asks for help, help is provided along with positive descriptive praise	Teacher ☐	Coach ☐

Requirements: If the child does not ask for help, write N/O in the box.

5T7	If child does not comply, directions are repeated and child is supported in following through (i.e., noncompliance does not result in escape from task demand)	Teacher ☐	Coach ☐

Mark N/O in box if child complies with transition.

5T8	Positive, descriptive praise is provided to the child for engaging in the transition appropriately	Teacher ☐	Coach ☐

Requirements: There must be a minimum of 3 positive descriptive praise statements.
Tally:

5T9	If child is given a helper role, this is contingent on desired (rather than undesired) behavior	Teacher ☐	Coach ☐

TEACHER indicators present: _____   TEACHER indicators possible: _____   % of indicators present: _____

COACH indicators present: _____   COACH indicators possible: _____   % of indicators present: _____

TOTAL indicators present: _____   **TOTAL** indicators possible: _____   % of indicators present: _____

Intervention Fidelity Checklist – Circle

Teacher & Child ID: _____JO 05_____ Coach ID: _____

Observation date: _____ Data collector ID: _____

Observation beginning time: _____ Observation ending time: _____

Number of adults present: _____ Number of children present: _____

Reliability   Yes ☐   ☐ No   Other data collector ID: _____

Condition: ☐ Baseline   ☐ Intervention   ☐ Maintenance   ☐ Generalization

Tier: ☐ Tier A   ☐ Tier B

Directions: Mark √ if indicator is present and 0 if it is not.

Activity	Start time	End time
large group		

		Teacher	Coach
5C1	Adult is seated in close proximity to target child	☐	☐

		Teacher	Coach
5C2	Adult provides fun activities that will support the engagement of almost all of the class	☐	☐

Requirements: Almost all of the children must be engaged during all activities. There should not be periods of wait time or activities that do not engage children.

		Teacher	Coach
5C3	Structured large-group (e.g., circle) activities are structured so that children are actively engaged (responding, interacting) almost all of the time	☐	☐

Requirements: Children should have the opportunity to engage in large-group activities both verbally and physically. At least one of these options should be present most of the time.

☐ Verbally: _____

☐ Physically: _____

_____

5C4	Target child is provided with opportunities to make meaningful choices within teacher-directed activities	Teacher ☐	Coach ☐

Requirements: There must be at least 1 opportunity to make choices within each activity.

Examples: During circle, examples could include choosing a helper job, choosing a song to sing, and choosing where to sit.

☐ Activity 1: _____ Tally: _____

5C5	Adult frequently comments positively when target child is engaged in activity	Teacher ☐	Coach ☐

Requirements: Praise must be descriptive, and there must be at least 3 examples.

Tally: _____

5C6	Adult modifies instruction or activity when a majority of the children lose interest in large-group activities	Teacher ☐	Coach ☐

Requirements: There must be at least 1 example. If the activity is going well, assume the teacher is self-correcting.

Tally: _____

TEACHER indicators present: _____   TEACHER indicators possible: _____   % of indicators present: _____

COACH indicators present: _____   COACH indicators possible: _____   % of indicators present: _____

TOTAL indicators
present: _____

TOTAL indicators
possible: _____

% of indicators present: _____

Intervention Fidelity Checklist – Transitions

Teacher & Child ID: _____JP 06_____   Coach ID: _____

Observation date: _____   Data collector ID: _____

Observation beginning time: _____   Observation ending time: _____

Number of adults present: _____   Number of children present: _____

☐
Reliability   Yes   ☐ No   Other data collector ID: _____

Condition: ☐ Baseline   ☐Intervention   ☐Maintenance   ☐Generalization

Tier: ☐ Tier A   ☐ Tier B

Directions: Mark √ if indicator is present and 0 if it is not.

Activity	Time	Activity	Time

		Teacher	Coach
6T1	A whole-class warning is provided prior to transition	☐	☐

Requirements: Teacher must provide a whole-class warning for every transition. If the class is transitioning from circle and a whole-class warning is not appropriate, write N/O in the box.

		Teacher	Coach
6T2	The target child is provided with a direct warning prior to transition	☐	☐

Requirements: At least one direct warning must be provided.

6T3	The child is provided with choices embedded within the transition	Teacher ☐	Coach ☐

Examples: the child can choose whether to bring his chair to circle himself, whether to sit in the chair or on the carpet
Requirements: At least one choice must be provided within the transition

6T4	The sequence of the transition is reviewed with the target child	Teacher ☐	Coach ☐

Examples: First, we will take your chair to the carpet. Then you can pick a toy to hold.
Requirements: There must be at least 1 example per transition. This may be verbal or include visuals/items.

6T5	When child complies with task demands, he is allowed to choose a toy to hold or bring to circle.	Teacher ☐	Coach ☐

 Example: You're cleaning up so well! Do you want to bring Monkey to circle with you?
First, sit in your chair. Then you can have the police car.

6T6	Positive, descriptive praise is provided to the child for engaging in the transition appropriately	Teacher ☐	Coach ☐

Requirements: There must be a minimum of 3 positive descriptive praise statements or physical affirmations (high five, pat on back).
Tally:

TEACHER indicators present: _____   TEACHER indicators possible: _____   % of indicators present: _____

COACH indicators present: _____   COACH indicators possible: _____   % of indicators present: _____

TOTAL indicators
present: **TOTAL** indicators
possible: % of indicators present:

Intervention Fidelity Checklist – Circle

Teacher & Child ID: JP 06   Coach ID: _____

Observation date: _____   Data collector ID: _____

Observation beginning time: _____   Observation ending time: _____

Number of adults present: _____   Number of children present: _____

Reliability   ☐ Yes   ☐ No   Other data collector ID: _____

Condition: ☐ Baseline ☐ Intervention ☐ Maintenance ☐ Generalization

Tier: ☐ Tier A ☐ Tier B

Directions: Mark √ if indicator is present and 0 if it is not.

Activity	Start time	End time
large group		

5C1	Child is given a choice of where to sit at circle	Teacher ☐	Coach ☐

Example: child can bring his chair to the carpet, child can choose whether to sit in chair or on carpet

5C2	Circle time is under 20 minutes	Teacher ☐	Coach ☐

Requirements: The time between the beginning of teacher-directed circle and the time when the next activity begins should be 20 minutes or less in duration.

5C3	The sequence of circle time is reviewed for the group or for the target child	Teacher ☐	Coach ☐

Requirements: This may be done verbally or using a visual schedule. The child should know what will happen during group, and when it is over.

5C4	If possible, the target child is provided with opportunities to have a helper role during circle time	Teacher ☐	Coach ☐

Example: target child holds job chart while children choose jobs, target child holds materials for teacher, target child holds rule visuals.
Requirements; There must be at least one example.

☐ Activity 1: _____ Tally: _____

5C5	Adult frequently comments positively when target child is engaged in activity	Teacher ☐	Coach ☐

Requirements: Praise may be verbal and/or physical, and there must be at least 3 examples.

Tally: _____

5C6	Adult modifies instruction or activity when a majority of the children lose interest in large-group activities	Teacher ☐	Coach ☐

Requirements: There must be at least 1 example. If the activity is going well, assume the teacher is self-correcting.

Tally: _____

5C6	If the child asks for a break or early release, this is granted contingent upon appropriate behavior.	Teacher ☐	Coach ☐

5C6	The child is given a choice of a reinforcer toy to hold during circle.	Teacher ☐	Coach ☐

Example: child is told "First sit, then pick a toy." He picks the police car. He may request another choice later in circle if needed.

TEACHER indicators
present: _____

TEACHER indicators
possible: _____

% of indicators present: _____

COACH indicators
present: _____

COACH indicators
possible: _____

% of indicators present: _____

TOTAL indicators
present: _____

TOTAL indicators
possible: _____

% of indicators present: _____

Intervention Fidelity Checklist – Small Groups

Teacher & Child ID: <u>JP 06</u>   Coach ID: _____

Observation date: _____   Data collector ID: _____

Observation beginning time: _____   Observation ending time: _____

Number of adults present: _____   Number of children present: _____

☐

Reliability   Yes   ☐ No   Other data collector ID: _____

Condition: ☐ Baseline   ☐ Intervention   ☐ Maintenance   ☐ Generalization

Tier: ☐ Tier A   ☐ Tier B

Directions: Mark √ if indicator is present and 0 if it is not.

Activity	Start time	End time
small group		

		Teacher	Coach
6S1	Child is provided with meaningful choices throughout the activity	☐	☐

Example: child can choose a car to bring, choose where to go first, choose how to play, etc.
Requirements: There must be at least 2 examples.

		Teacher	Coach
6S2	Circle time is under 20 minutes	☐	☐

Requirements: The time between the beginning of teacher-directed circle and the time when the next activity begins should be 20 minutes or less in duration.

		Teacher	Coach
6S3	The sequence of small groups is reviewed for the group or for the target child	☐	☐

Requirements: This may be done verbally or using a visual schedule. The child should know what will happen, in what order, and when it is over.

6S4	If possible, the target child is provided with opportunities to have a helper role during small groups	Teacher ☐	Coach ☐

Example: target child holds materials for teacher, target child carries materials.
Requirements; There must be at least one example.

☐ Activity 1: _____ Tally: _____

6S5	Adult frequently comments positively when target child is engaged in activity	Teacher ☐	Coach ☐

Requirements: Praise may be verbal and/or physical, and there must be at least 3 examples.

Tally: _____

6S6	Adult modifies instruction or activity when a majority of the children lose interest in the activity	Teacher ☐	Coach ☐

Requirements: There must be at least 1 example. If the activity is going well, assume the teacher is self-correcting.

Tally: _____

6S7	If the child asks for a break or early release, this is granted contingent upon appropriate behavior.	Teacher ☐	Coach ☐

TEACHER indicators present: _____   TEACHER indicators possible: _____   % of indicators present: _____

COACH indicators present: _____   COACH indicators possible: _____   % of indicators present: _____

TOTAL indicators present: _____   **TOTAL** indicators possible: _____   % of indicators present: _____

Data Collection Summary Form

Teacher ID: _____
Data Collector ID: _____
Date:_____

DATA COLLECTION SUMMARY

Instructions: *This log MUST be completed <u>every time</u> data collection is <u>attempted or collected</u>. This documents any occurrences that could impact data integrity and alerts us about whether data entry corrections are needed.*

___ Collected   ____ **Attempted** *(describe situation in notes)*

Reliability: ___No   ___ Yes (partner ID:____)

Number of children present: _____   **Target child**: _____

PDA number: _____

Purpose of visit: ____Battelle   ____ TPOT   ___Target Behavior

____ Other (describe below)

Irregularities *(check all that apply, describe in notes if needed):*

___Atypical attendance pattern	___Unusual schedule (long outdoor time, short circle, etc.)
___Class party	
___Fire drill	___Staff left classroom for significant length time (affected class management for 15 min or more)
___Guest speaker	
___New students (within 2 weeks)	___ Lead teacher _____other
___Other (describe below)	

Notes *(include any rationale for extended time gap since previous observation, reason observation was not completed, details of adverse events, etc.*):

_____

_____

Was the FIX button used?   ____ YES ___ NO _____ N/A *(one must be checked)*
How many times? _____
Please describe:

Appendix H
Social Validity Questionnaire

Teacher Questionnaire

PART 1 *Please circle your answer based on the following rating scale:*

1	**2**	**3**	**4**
strongly disagree	disagree	agree	strongly agree

---

1. Using the behavior support plan was <u>easy</u> to do.
       1   **2**   **3**   **4**

2. I see <u>fewer</u> challenging behaviors during the targeted activities since starting to use the practices.
       1   **2**   **3**   **4**

3. It did <u>not</u> take a lot of time to learn how to use practices to encourage appropriate behaviors.
       1   **2**   **3**   **4**

4. The training was effective and easy to understand.
       1   **2**   **3**   **4**

5. It did <u>not</u> take too much time to use practices with the target child.
       1   **2**   **3**   **4**

6. I would recommend using these practices to another teacher.
       1   **2**   **3**   **4**

7. The observers were unobtrusive and did not disrupt my classroom day.
       1   **2**   **3**   **4**

8. The feedback I received was helpful.
       1   **2**   **3**   **4**

9. I would like to receive feedback for other training purposes.
       1   **2**   **3**   **4**

<u>PART 2</u> *Please answer the following questions as honestly and completely as possible.*
What were the benefits of using the behavior support plan in your classroom?

What struggles did you face when using the behavior support plan?

Will you continue to use these strategies? Why or why not?

Thank you for your time and participation!

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