Typical School Personnel Developing and Implementing Basic Behavior Support Plans

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Abstract

We evaluated the ability of typical school personnel with basic behavioral training to develop and implement function-based supports for students with mild to moderate problem behaviors. Descriptive results indicated that following 4 one-hour training sessions 13 participants were able to: a) identify interventions that were and were not functionally related to problem behavior, and b) lead school-based teams in developing support plans that were rated as technically sound by external behavior analysts. Data resulting from a non-concurrent multiple baseline analysis across 5 of the trained professionals, each working with a team to address the problem behavior of one elementary school student, indicate that plan implementation occurred with high fidelity and was functionally related to decreases in problem behavior and increases in academic engagement. Additionally, school personnel rated the training, tools, and implementation process as effective and efficient. Limitation and implications of these results are discussed.

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Problem behaviors such as aggression, non-compliance, property destruction and social withdrawal continue to be among the largest challenges faced by educators in schools today. Without effective intervention, recurrent behavior problems often result in removal from general education settings (e.g., office referrals, detentions, suspensions), and can ultimately lead to unnecessary referrals for special education services and diagnoses of emotional and behavioral disorders (January, Casey, & Paulson, 2011). With the 1997 and 2004 reauthorizations of IDEA mandating the use of functional behavioral assessment (FBA) to guide the development of behavior support for students with disabilities exhibiting problem behavior that impedes their educational success, a great deal of attention shifted to the efficacy and feasibility of providing function-based support for individual students in school settings. Since that time a significant body of research indicates that individualized function-based supports based on FBA information are highly effective in decreasing persistent patterns of challenging behavior (Cook et al., 2012; Didden, Duker, & Korzilius ,1997; Filter & Horner, 2009; Iwata et al, 1982/1994; Marquis et al., 2000; Newcomer & Lewis; 2004; Pelios, Morren, Tesch & Axelrod, 1999), and the use of FBA is now advocated as best practice for addressing challenging behavior of students with and without disabilities (Cooper, Heron, & Heward, 2007; Scott, Anderson & Alter, 2012; Renshaw, Christensen, Marchant, & Anderson, 2008).

 Traditionally, FBA has been most commonly applied with students exhibiting serious and/or pervasive challenging behaviors that have been resistant to previous intervention efforts. However, FBA and the implementation of function-based interventions can be most effective when students first begin to demonstrate persistent patterns of challenging behavior (i.e., before problem behavior is reinforced and strengthened over time; Scott, Alter, & McQuillan, 2010). The current expectation is that schools will have both formal systems for early identification of students in need of behavior support, and team-based structures for assessment, plan development and plan implementation. Within this framework, teams of school-based professionals meet regularly to: a) review school-wide and individual student data, b) identify students at risk for needing or in need of additional behavioral support, and c) design and monitor the effectiveness of behavioral interventions for students who require individualized support. For the most challenging student behaviors, the FBA process is likely to include multiple direct methods of observation and data collection across a number of settings, days, and times and ultimately result in a complex behavior support plan (BSP) that is developed by a school-based team with guidance from an individual with extensive behavioral training (e.g., a board certified behavior analyst). With less complex or less intense behavior support needs, however, the FBA and BSP processes may be more efficiently provided by typical educators indigenous to the school. Loman and Horner (in press) demonstrated that typical school personnel were able to master functional behavioral assessment procedures and generate results for “basic” behavior support problems that were confirmed by formal functional analyses. The focus of the present research was on extending the results of Loman and Horner from completing a basic FBA to development and implementation of basic behavior support plans by typical school personnel.

 A significant concern as schools struggle to build capacity to develop and implement function-based support is a general lack of staff with sufficient behavioral training (Ducharme & Schecter, 2011). Though many school professionals have received training on conducting team-based FBA, research suggests that this training has not been sufficient to teach the skills needed to effectively utilize FBA data when developing individualized BSPs. For example, in a review of 71 team-developed student FBA-BSPs, Van Acker, Boreson, Gable, and Potterton (2005) found that nearly half of the plans showed little or no correspondence between the FBA data and the behavior support strategies selected, and, possibly more concerning, the authors noted that several of the plans included strategies which resulted in the student gaining access to the maintaining reinforcer following the occurrence of problem behavior. In a related study, Cook et al. (2007) examined 110 FBA-BSPs developed by district behavior support teams and found 89% of the plans to be missing critical features such as an operational definition of the problem behavior and strategies for increasing functionally-equivalent alternative behaviors. In 2012, when examining the relationship between treatment integrity and student outcomes, Cook et al. evaluated 139 plans developed by typical school professionals and again found a majority of the plans to be lacking one or more evidence-based critical features (e.g., strategies to minimize reinforcement of the problem behavior).

 If function-based supports are to be provided efficiently and effectively at the first signs of persistent problem behavior, school personnel will need: a) a more complete understanding of how to best structure and utilize their behavior support teams to address a range of behavioral concerns, and b) systematic and efficient training related specifically to the use of FBA information when developing behavior support for students in schools (Renshaw et al., 2008). Yet, few empirical studies have examined methods for systematically and efficiently training typical school professionals how to utilize FBA information when developing behavior support for students (Conroy, Alter, & Scott, 2009). The purpose of this study was to evaluate the feasibility and efficacy of typical school personnel to lead the development and implementation of function-based BSPs. The study was conducted in three phases. The first phase provided a descriptive assessment of the extent to which typical school team leaders demonstrated knowledge of core BSP development features before and following their participation in the *From Basic FBA to BSP* training package (Strickland-Cohen, Loman & Borgmeier, 2012). The second phase of the study (also descriptive) sought to determine if participants who met criteria for BSP development during the training, and went on to lead a typical school team, produced plans that were: a) perceived by school personnel as contextually appropriate, and b) perceived by outside expert behavior analysts as “technically sound.” The third phase was the experimental focus of the study. In this final phase, a non-concurrent multiple baseline design across Team Leader – Student dyads was employed to examine if there was a functional relation between implementation of the team-developed BSPs, and changes in student behavior. As a secondary research question in the third phase, the level of fidelity with which BSPs were implemented by typical classroom staff was assessed.

**METHODS**

**Participants**

 **Behavior Support Team Leaders.** Thirteen elementary school professionals (e.g., school psychologists, counselors, special education teachers) served as participants. Potential participants were nominated by the district behavior specialist based on their current job responsibilities (including the development of individualized behavioral supports), and previous participation in district trainings related to FBA. Prior to the beginning of the first *From Basic FBA to BSP* training session, each participant completed an informed consent to participate form, a brief demographic questionnaire and a 10-item test designed to assess knowledge of basic behavioral concepts (e.g., antecedents, positive reinforcement, extinction) adapted from the *FBA Knowledge and Skills Assessment* (Loman, 2010). The average score on the assessment of basic behavioral concepts was 98.6 % (range: 91 - 100%). All individuals nominated to participate chose to complete the first phase of the study. Team leader demographic information and scores on the test of basic behavioral concepts are shown in Table 1.

**School Behavior Support Teams**. Six of the thirteen team leaders who participated in the *From Basic FBA to BSP* training sessions had a student in their school subsequently nominated for a behavior support plan. Each of these six team leaders agreed to participate in the second and third phases of the study. Following typical school district protocol for nomination of a student for individualized support, each of the six team leaders assembled an individual student support team composed of the team leader, 1-3 members of the school’s student support team, and each student’s primary classroom teacher. These team members also served as participants in the study.

 **Students.** Students with “mild to moderate” problem behaviors (i.e., behaviors that were not perceived by staff as being dangerous to the student or others, and that were occurring during no more than 2 routines throughout the school day) were nominated to receive individualized support by their classroom teachers following normal campus protocols at each school. Following staff nomination, the first author conducted one to two 20 min direct observations using the Functional Assessment Observation Form (FAOF; O’Neill et al., 1997) to verify that student target behaviors were not placing the student or others at risk.

***Sebastian.*** Sebastian (pseudonyms used for each of the students) was a typically developing 6-year-old male Caucasian student in a 1st grade general education classroom with 24 students and one teacher. Sebastian’s behaviors of concern were being off-task (e.g., turning away from the speaker/materials, not engaging in choral reading exercises), and talking out (i.e., asking questions, making unrelated comments, or blurting out answers without raising hand and getting permission).

***Bailey.*** Bailey was a typically developing 11-year-old male Caucasian student in a 5th grade general education classroom with 25 students and one teacher. Bailey’s behaviors of concern were being off-task (e.g., drawing pictures during independent academic work), being out-of -seat without permission, and “playing with” objects or academic materials (e.g., drumming pencils on his desk, taking mechanical pencils apart, pulling strings off of his clothing or the carpet and shaking them).

***Micah.*** Micah was a typically developing 5-year-old male African-American student in a half-day general education kindergarten classroom with 21 students, one classroom teacher, and one instructional assistant. The behaviors of concern identified by Micah’s teachers were talk-outs/noises made with his mouth or hands, invasion of personal space of others (i.e., leaning on, touching/grabbing peers, teacher, or teaching materials), and getting out of his seat and wandering around the room without permission.

***Charlie.*** Charlie was a 7-year-old typically developing male African-American student in a 1st grade general education classroom with 26 students, one teacher, and one instructional assistant. The behaviors of concern identified by Charlie’s teacher were talking-out, talking to and making faces at peers, getting out of his seat and walking around the room without permission, and “playing with” or using materials inappropriately (e.g., stacking markers together and using them like a sword).

***Gareth.*** Gareth was a typically developing 6-year-old male Caucasian student in a 1st grade general education classroom with 22 students and one teacher. Gareth’s behaviors of concern were being out-of-seat without permission, talking-out/making noises, and talking to and making faces at peers during instruction.

 ***Jessie.*** Jessie was an 8-year-old male Caucasian student who spent most of his instructional day in a 2nd – 5th grade behavior support classroom with one teacher, two instructional assistants, and 9 students. Jessie was receiving special education services for a specific learning disability. His behaviors of concern were talking-out behavior (i.e., making comments without raising hand, arguing with the teacher following verbal reprimands) and leaving his seat without permission.

 **Classroom Staff.** In addition to the participating students and team leaders, the teachers and teaching assistants working with the six participating students were part of the study. The fidelity with which the classroom staff implemented the developed BSPs was observed, and the staff ratings of contextual fit for each BSP contributed to the analysis.

 **Expert Panel.** Two expert behavior analysts unconnected with the research study were recruited to judge the technical adequacy of BSPs generated by the behavior support teams. The experts were selected based on: 1) their expertise in developing function-based supports as evidenced by at least five years of conducting and teaching applied behavior analysis, 2) their professional independence from the research team, and 3) three or more peer-reviewed publications focused on FBA and implementation of function-based supports in schools.

**Setting**

The study took place in 6 elementary schools (i.e., kindergarten through fifth grade) in the state of Oregon. Each of the participating schools was implementing School-wide Positive Behavioral Interventions and Supports (SWPBIS) as evidenced by a total score of at least 80% on the School-wide Evaluation Tool (SET; Sugai, Lewis-Palmer, Todd, & Horner, 2001).

**Dependent Measures**

**BSP Knowledge Test.** To assess participant knowledge related to BSP development, each team leader completed a 50-item‘BSP Knowledge Test’ (adapted from Benazzi, Nakayama, Sterling, Kidd, & Albin, 2003). Two versions of the test were developed which shared a common format and focused on content, but contained slightly different examples. Both versions consisted of 3 open-ended questions related to critical components of BSPs and 5 test vignettes of mock student case examples including behavior support strategies which participants were asked to rate as either ‘function-based’, ‘neutral’, or ‘contraindicated’ based on the information provided (contact the first author for a copy of the measure). Possible scores ranged from 0 to 100%. Prior to the study, the tests were expert reviewed for content validity and field-tested to demonstrate sensitivity with an elementary school professional fitting the inclusion criteria for the study.

 **BSP Critical Features Checklist.** The technical adequacy of each team-developed BSP was evaluated by the expert panel using a 20-item scoring guide based on the *Intensive Individualized Interventions Critical Features Checklist* (Lewis-Palmer, Todd, Horner, Sugai, & Sampson, 2004). The checklist prompted the scorer to indicate whether the BSP included: (a) an operational description of the problem behavior, (b) strategies for preventing the problem behavior, teaching alternative and desired behavior, and minimizing reinforcement for problem behavior while maximizing reinforcement for appropriate behaviors, and (c) a plan for implementing the BSP strategies and for evaluating the fidelity of implementation and effects on student behavior. The checklist also asked the rater to indicate whether the preventive, teaching, and consequence strategies developed by the team were indicated by the results of the FBA. Each item was worth one point, with possible scores ranging from 0 to 20. .

 **Contextual Fit Rating Scale.** Student BSPs were evaluated by each of the members of the school BSP teams using the *Self-Assessment of Contextual Fit in Schools* (Horner, Salentine, & Albin, 2003). The assessment included sixteen items organized into eight domain areas: knowledge of the elements of the plan, skills needed to implement the plan, values reflected in the plan, resources available to implement the plan, administrative support, effectiveness of the plan, whether the plan is in the best interest of the student, and if the plan would be efficient to implement. Items were rated on a 6-point Likert scale (1=strongly disagree to 6=strongly agree), with a range of possible scores from 16 to 96. Team member scores were averaged, resulting in one score for contextual fit awarded for each BSP.

**Student Problem behavior.** Problem behavior included talk-outs/noises, out-of-seat, invading the space of others, and inappropriate use of objects/academic materials. *Talk-outs/noises* were defined as any statement or noise made by a student that interrupts or interferes with instruction or other students’ attention to task without being called on or asked a question directly. *Out-of-seat* was defined as any instance in which a student leaves his or her seat (i.e., student loses contact with surface of the desk, chair, or specified seat on the carpet) without permission from the teacher. *Invading the space of others* was defined as leaning on, touching/grabbing peers or teacher; or touching/grabbing others’ materials. *Inappropriate use of objects/academic materials* was defined as manipulating or using materials for anything other than their intended purpose (e.g., taking apart mechanical pencils, linking markers together and using them like a sword, tearing holes in construction paper and wearing it like a mask, etc.). *Academic engagement* was defined as orienting toward the board, overhead, or teacher; engaging physically or verbally with materials or tasks; contributing to assigned cooperative activities; or engaging in appropriate teacher-approved activities (e.g., reading a preferred book, completing a word search activity) if independent work was completed early.

Direct observations of student behavior were conducted during once-per-day 20-min sessions prior to and during intervention using a 10 sec partial interval paper and pencil recording system. Problem behavior was recorded if it occurred at any point during the 10 sec interval. Academic engagement was recorded when student participants were engaged for at least 8 out of 10 seconds in an interval.

**Fidelity of implementation.** Fidelity of implementation was assessed using checklists developed by the first author for each student/teacher dyad, which included the unique BSP strategies defined for each student participant. Each checklist consisted of 6 to 8 items scored as either “yes”, “no”, or “not applicable”. Items included: a) one-time discreet events (e.g., “Prior to the beginning of the reading lesson, the teacher provided the student with a verbal reminder to raise his hand if he has a question”), b) conditional probabilities (e.g., “If problem behavior occurred, the teacher provided the student with a visual cue to raise his hand”), and c) rates of behavior (e.g., “Staff provided at least 5 specific praise statements for appropriate behavior during the 20 minute observation period”). The checklist generated a percentage-of-items-implemented score.

**Design and Procedures**

**Phase I: Training**. Behavior Support Team Leaders completed 4 one-hour training sessions, delivered by the first author, and guided by the *From Basic FBA to BSP* Participant’s Guide (Strickland-Cohen, Loman, & Borgmeier, 2012; available at www.pbis.org). Training sessions occurred once per week for 4 weeks. All trainings were conducted by the first author. The first training session provided an overview of the training series and a review of basic behavioral terms. The second training session provided instruction, modeling, and practice opportunities designed to teach participants to develop preventive, teaching, and consequence strategies that are directly related to the function of the problem behavior. Session 3 provided instruction on the importance of contextual fit, and instruction and practice opportunities related to implementation and evaluation planning. The fourth and final training session consisted of: (a) an overview of all of the concepts and skills taught during the first three sessions; (b) instruction related to and modeling of the steps for leading a team through the behavior support planning process; and (c) a role play exercise designed to provide participants the opportunity to combine and practice the skills they had learned throughout each of the trainings.

***BSP knowledge pretest/posttest.*** Prior to receiving training and immediately following the final training session, each behavior support team leader completed the *Assessment of BSP Knowledge*. The two versions of the pretest/posttest, Version A and Version B, were administered in a counterbalanced order (i.e., half of the participants were randomly selected to complete pretest Version A and posttest Version B, and the other half completed pretest Version B and posttest Version A). Participants were provided as much time as needed to complete the assessment. All team leaders completed the posttest in less than 30 minutes. The total percentage of correctly answered test items pre- and post-training was calculated for each participant. Five (i.e., 38.5%) of the pre- and post-tests were randomly selected and rated by a second rater. Using an answer key indicating the answers for the tests, the two raters achieved 99% total agreement ([Agreement – Disagreement/ Agreement + Disagreement] x 100%).

***Functional behavioral assessment.*** During Phase I, six participating team leaders a) consented to participation in Phase II of the study, and b) identified a student at their school whose problem behavior met the study inclusion criteria. A functional behavioral assessment was completed for each student. An interview with teaching staff most familiar with the student was conducted by either the researcher or the campus school psychologist using the Functional Assessment Checklist for Teachers and Staff (FACTS; March et al., 2000). Interview data were used to develop a summary statement defining the problem behavior, specifying of events that reliably predict and the consequences that typically followed the behavior, and identifying the most likely function of the behavior. One to two 20 min in-situ direct observations of student behavior were then conducted by the researcher to confirm the summary statement.

**Phase II: BSP Development.** In Phase II, the six participating team leaders who agreed to participate in the second and third phases of the study and identified a student in need of individual behavior support during Phase I and led their school-based teams in developing a BSP using the FBA data collected for their selected student. Team leaders met with their respective teams for 1 to 1.5 hours (i.e., either one 1 hour meeting or two 45min meetings) to guide team members through this process using a three-part BSP format based on the Competing Behavior Pathway model (Crone & Horner, 2003). First the team members used the summary statement from the FBA to develop a competing behavior pathway (O’Neill et al., 1997), identifying the problem behavior, antecedents, consequences, and the function of the problem behavior. Team members completed the pathway by selecting a functionally equivalent alternative behavior and by defining the behavior that the team ultimately desired the student to engage in, along with the consequences for engaging in that behavior. A sample competing behavior pathway is shown in Figure 1. The team then used the information in the completed pathway to develop preventive, teaching, and consequence strategies that directly addressed the function of the target behavior(s).

 After selecting behavior support strategies, team members created a plan specifying the names of the individuals responsible for implementing each intervention strategy, and a date when those interventions would be implemented. Then, the team leaders guided their respective teams through was creating an evaluation plan including: (a) a short- and long-term goal for student behavior and expected dates for meeting each goal, (b) specific procedures for monitoring implementation fidelity and evaluating changes in student behavior, and (c) a specific date for when the team would next meet to review the plan. Completed BSPs were evaluated for both technical adequacy (by participating BSP team members) and technical adequacy (by outside experts).

**Phase III: BSP Implementation.** In this phase the unique BSP strategies and interventions that were developed by the behavior support teams for Sebastian, Micah, Gareth, Charlie, and Bailey were implemented by typical classroom staff. A nonconcurrent multiple-baseline across-participants design was used (i.e., interventions were introduced with a staggered number of days in baseline across participants). Ten sec partial-interval direct observation data were collected on student problem behavior and academic engagement during 20 min observation sessions three to five days per week. Observations took place in each student’s classroom at a time when FBA data indicated that problem behavior was most likely to occur. During 100% of intervention session, observers also completed implementation checklists to document fidelity of implementation of the team-developed BSP strategies by classroom staff.

***Interobserver agreement*.** Inter-observer agreement (IOA) was calculated for a minimum of 33% of baseline sessions and 43% of intervention sessions for each student participant. Data collectors were trained graduate students in the special education program at the University of Oregon. The first author acted as a second observer and independently scored problem behavior, academic engagement, and implementation fidelity. Both total agreement and occurrence-only agreement were calculated for academic engagement and each problem behavior. Total agreement between observers was calculated for fidelity of implementation.

Average IOA across participants for problem behavior was 95% (range: 94 - 97%) for total agreement and 89% (range: 86 - 92%) for occurrence-only agreement. For academic engagement, average IOA across participants was 98% (range: 94 - 98%) for total agreement and 95% (range: 93 - 95%) for occurrence-only agreement. Total percentage agreement was calculated by taking the number of intervals in which the two observers agreed and dividing by the total number of intervals. Occurrence-only agreement was calculated by taking the number of intervals in which the two observers agreed that a specific problem behavior or academic engagement occurred and dividing by the number of intervals in which either observer recorded the target behavior. For the fidelity of implementation of student BSP strategies, total agreement was calculated by taking the number of items on which the two observers agreed and dividing by the total number of items. Average IOA across participants for fidelity of implementation was 98%.

**RESULTS**

**Assessment of BSP Knowledge**

Phase I of the study was designed to provide descriptive documentation that participants ended Basic BSP training with knowledge of the core concepts and processes for building BSPs. A secondary interest in Phase I was to also assess participant knowledge level before Basic BSP training and consider changes in performance after training. Table 2 below provides the results of the *Assessment of BSP Knowledge* scores pre Basic BSP training and post Basic BSP training.. The average participant pre-training score was 62% (range: 43 - 80%). The average participant post-training assessment score was 88% (range: 80 - 96%). The average percent change for participants from pre- to post-training assessment was an increase of 26%

**BSP Development**

During phase II, six of the participants led teams at their respective schools in the development of BSPs for the selected student participants. Team members used information from existing FBAs, and followed the BSP process to develop individualized function-based plans for each student. All student plans included: a) a completed competing behavior pathway, b) strategies designed to prevent problem behavior from occurring, c) strategies to teach new alternative and desired behaviors/skills, d) consequence strategies to maximize reinforcement for appropriate behavior and minimize reinforcement for problem behavior, e) an implementation plan specifying who would implement what strategies, and by when, and f) a specific plan for evaluating the extent to which the plan is being implemented, as well as plan effectiveness.

 **Sebastian.** For Sebastian, the FBA resulted in a hypothesis that during large and small group direct instruction lessons, when there was a lack of direct adult attention, he engaged in off-task behavior (e.g., looking away from the speaker/materials, turning to the wrong page in the book being read from, not engaging in choral reading), and talking out (e.g., asking questions, making unrelated comment, blurting out answers without raising his hand and getting permission) that were maintained by adult attention.

Sebastian’s school-based team (i.e., team leader, classroom teacher, and school counselor) opted to first teach Sebastian to raise his hand as an alternative way to obtain adult attention. Once he was successfully using the alternative behavior, the plan specified that Sebastian would be taught to wait to be called on for gradually increasing increments of time. Team developed strategies to prevent Sebastian from engaging in problem behavior included having the classroom teaching in close proximity during whole group instruction, providing frequent adult attention for positive and neutral behaviors, and placing a visual reminder to “raise hand” on his desk. To reward alternative and desired behaviors, Sebastian’s team members chose the strategy of providing Sebastian with immediate descriptive adult praise and stickers on his sticker chart (already being used in the classroom). Team members selected redirecting to the alternative behavior of raising hand and minimizing adult attention as consequences for engaging in problem behavior.

**Bailey.** Bailey’s FBA resulted in the hypothesis that during Reading, Math, and Writing when asked to complete academic tasks independently, he often engaged in off-task behavior (i.e., drawing pictures, getting out of seat without permission, “playing with”/manipulating objects) maintained by escaping/avoiding non-preferred academic tasks. After reviewing and agreeing on the information provided in the FBA report, Bailey’s classroom teacher and the team leader used the FBA information to develop an individualized BSP.

To prevent the occurrence of problem behavior, team members decided that during independent work Bailey would be provided with: a) a self-monitoring checklist for reminding him of the explicit steps involved in completing his work, b) a spiral notebook with prompts to help him keep track of his assignments, and c) assignments with important text highlighted. Team members agreed to teach Bailey how to monitor his own academic engagement and to teach him how to take brief notes that could be used to later clarify assignments. As an alternative to engaging in problem behavior, the team also decided to teach Bailey how to appropriately raise his hand and request a brief break from academic tasks. The team selected consequences for appropriate behavior that included allowing Bailey to take a brief break when he asked appropriately and earning time to engage in preferred activities for staying on-task during independent work. Consequence strategies for engaging in inappropriate behavior included reminding Bailey to ask for a break and, if the reminder was ineffective, requiring that he make up his work during a preferred activity such as art or recess.

**Micah.** Micah’s school-based team consisted of the team leader, his classroom teacher, and the school principal. For Micah, the FBA data indicated that during “carpet time”, when the teacher was instructing the whole group (i.e., not attending directly to the student) Micah frequently talked out, made noises with his mouth or hands, invaded the space of others (i.e., leaned on, touched/grabbed peers, teacher, or teaching materials), and/or got out of his seat without permission, resulting in teacher reprimands. Information provided by staff and direct observation data indicated that the most likely function of Micah’s problem behavior was to obtain adult attention.

Micah’s team chose to use modeling of examples and non-examples, along with multiple in-situ practice opportunities, to teach him to raise his hand as an alternative way to obtain adult attention. Instructional strategies also included explicitly teaching Micah how to sit on the carpet appropriately during circle time. Strategies to prevent problem behavior included: a) putting a tape barrier on the carpet directly in front of the teacher to indicate where Micah was to sit, b) providing frequent adult attention, and c) modeling “raising hand” and “quiet mouth” on the way to the carpet. Consequence strategies chosen for responding to problem behavior included minimizing adult attention and sending the student to “time-out” away from the group until several seconds had passed with no problem behavior (or a maximum of 2 minutes). To reward alternative and desired behaviors, the teacher would praise Micah’s behavior and provide him with a token. After receiving a set number of tokens, Micah would be given a sticker and praised by the teacher in front of the whole class.

**Charlie.** Charlie’s FBA data showed that when asked to complete work independently during Math and Writing, he often talked out, talked to and made faces at peers, walked around the room without permission, and used materials inappropriately (e.g., putting marker caps in his nose), and that these behaviors were maintained by obtaining peer attention. It was also noted that his behavior was often worse on days when he was reprimanded for his behavior on the bus or in the breakfast line before school. To provide an alternative to engaging in problem behavior, Charlie’s team (i.e., the team leader and his classroom teacher) selected the behavior of raising his hand and asking to work quietly with a peer during independent work.

To prevent the occurrence of problem behavior, team members decided that on days when Charlie was reprimanded for his behavior on the bus or in the breakfast line before school he would be given a preferred job or task to do with a peer before beginning work for the day. Other prevention strategies for Charlie included providing specific praise in front of peers, and putting a point sheet on his desk and reminding him at the beginning of independent work that he could earn non-academic time with peers for engaging in appropriate behavior. In addition to earning time to interact with peers, another consequence strategy followed by the teacher involved allowing Charlie to complete academic work with a peer when he asked appropriately. When Charlie engaged in inappropriate behavior, it was decided that he would be reminded to use the alternative behavior and that peers would be reminded to ignore his problem behavior.

**Gareth.** The members of Gareth’s school-based team werethe team leader, the classroom teacher, and the school counselor. The FBA for Gareth resulted in the hypothesis that during large group instruction in Math, when he sat beside peers on the carpet, Gareth often engaged in out-of-seat behavior (i.e., crawling around on carpet or standing up and walking around), talked out without raising his hand, talked to and made faces at peers, and made noises that were maintained obtaining peer attention. As an alternate way of obtaining peer attention, Gareth’s was taught how to complete a variety of class jobs (e.g., passing out worksheets/materials, leading choral responding) at the beginning of, or during, whole-group math instruction.To prevent problem behavior from occurring the team decided to have him sit on the carpet in front of the teacher with at least an arm’s length of space between him and his peers, and to remind the whole group of carpet-time expectations at the beginning of the math lesson. To reinforce appropriate alternative and desired behaviors, Gareth earned stickers that could be traded in for extra recess time for the whole class. As a consequence strategy to address inappropriate behavior, Gareth’s peers were taught to ignore his problem behavior.

**Jessie.** Jessie’s FBA data indicated that during small group reading instruction in the resource classroom, when the teacher was attending to other students or when several minutes had passed without 1:1 attention, Jessie often engaged in talking-out behavior (i.e., making comments without raising his hand, arguing with the teacher following verbal reprimand) and left his seat without permission. These behaviors were viewed and being maintained by gaining access to adult attention. Jessie’s team (consisting of the team leader, the resource teacher, and the school psychologist) chose the skill of raising hand and waiting quietly to be called on as an alternative behavior for getting adult attention.

Team-selected strategies for preventing the occurrence of Jessie’s problem behavior included: a) providing him with a visual cue card to remind him to raise his hand, b) providing frequent, specific adult praise at least every 2 to 3 minutes, and c) providing scheduled breaks to complete a small task or job with an adult. When Jessie engaged in appropriate behavior, his plan specified that he was to receive immediate adult praise along with points that could be exchanged at the end of the school day for five minutes to play a game or engage in other preferred activity with the teacher. In response to problem behavior, the plan included strategies for providing a reminder to raise his hand or asking him to take a 30 second time out by putting his head down on the desk. Jessie’s BSP strategies also included a “crisis plan” specifying that if his behavior became too disruptive to other students, he would be required to sit alone at a table in the back of the classroom.

**Contextual Fit**

 Upon completion of **e**ach BSP, team members rated the extent to which they felt the plans were contextually appropriate using the *Self-Assessment of Contextual Fit in Schools* (Horner et al., 2003). The range of possible scores was 16 to 96 points, with higher scores indicating a higher degree of contextual fit. Team member scores (i.e., 2 to 3 scores for each student plan) were averaged, resulting in one score for contextual fit awarded for each BSP. The average overall contextual fit score for the team-developed BSPs was 92 points (range: 89 - 93); with slightly lower scores relating to team member perceptions of administrative support and adequate available resources.

**Technical Adequacy**

To rate the technical adequacy of each of the BSPs, the two members of the expert panel used the *BSP Critical Features Checklist* to score each student plan from zero to 20. Scores were averaged across experts so that each BSP was ultimately awarded one score for technical adequacy. The average score on the *BSP Critical Features Checklist* for each team-developed BSP was 19.90 points (range: 19 - 20), with inter-rater agreement between the two experts averaging 99.2%.

**Direct Observation Data**

 Figure 2 summarizes problem behavior and academic engagement results for Sebastian, Bailey, Micah, Charlie, and Gareth (direct observation data were not collected for Jessie’s behavior due to lack of parental consent), and fidelity of implementation of student BSP strategies by classroom staff.Data were collected within a non-concurrent multiple-baseline design across participants. Baseline data collection was initiated for Sebastian, Micah, Garth, Charlie and Bailey on January 4th, January 12th, January 31st, February 7th and February 7th respectively.

**Problem behavior.** During baseline the 5 target students all displayed high stable or increasing levels of problem behavior, with occurrence of problem behavior averaging over 50% of the 10 s observation intervals. Following the implementation of team-developed intervention strategies there was an immediate decrease in problem behavior across all five participants. Following the implementation of Sebastian’s BSP strategies there was as an immediate and consistent change in trend and a decrease in level for problem behavior as compared to baseline. The mean percentage of intervals with off-task behavior for Sebastian during baseline was 49% (range: 48 - 63%) and during intervention sessions this declined to 12% (range: 4 - 25%). Bailey’s direct observation data also demonstrate an immediate change in trend and level for problem behavior from baseline to intervention, with the exception of a spike in Bailey problem behavior in Session 12. Session 12 occurred on the first day the student returned from spring vacation, and also corresponded with a significant decrease in fidelity of implementation of the BSP by the classroom teacher. The mean percentage of Bailey’s problem behavior during intervention sessions was 17% (range: 6 - 43%) compared with 68% (range: 63 - 78%) during baseline.

During his first eight sessions in the intervention condition, Micah’s data indicate an immediate and consistent decrease in the mean level of occurrence of problem behavior. The mean percentage of Micah’s problem behavior during these intervention sessions was 16% of intervals (range: 13 - 20%) compared with 53% (range: 45 - 63%) during baseline. In session 18, there was a change in teaching staff (represented in the graph by a broken phase change line). Session 18 represents the last session in which the original teacher who aided in the development of Micah’s BSP was present in the classroom (i.e., the new teacher was providing instruction to the class, while the original teacher observed). During sessions 19-22, the original teacher was no longer present in the classroom. One week prior to the change in classroom staff, the team leader who helped develop the BSP left her position at Micah’s school. Following the change in classroom staff, the mean level of occurrence for problem behavior increased to 36% of intervals (range: 22 - 66%).

Data for Charlie and Gareth show an immediate and consistent decrease in the level of problem behavior following intervention. For Charlie, the average level of problem behavior during intervention sessions was 6% (range: 3 - 12%) compared with 61% (range: 48 - 72%) during baseline, while the mean level of Gareth’s problem behavior during intervention sessions was 9% (range: 3 - 23%) compared with 61% (range: 53 - 80%) during baseline.

**Academic engagement.** During Baseline, the average percentage of intervals with academic engagement for all five participants ranged from 28% to 54%, with data for Sebastian documenting a steady decreasing trend. Following implementation of the team-developed BSP strategies, the data show an immediate increase in the percentage of intervals with academic engagement for all participants. For Sebastian, average academic engagement increased to 91% of intervals (range: 77 - 100%). For Bailey, academic engagement increased to an average of 86% of intervals (range: 79 - 94%), excluding the previously noted session 12 at 63%. Academic engagement for Micah averaged 77% (range: 73 - 83%) of intervals during the first 8 sessions of intervention. During intervention sessions that corresponded with a change in classroom teacher and decreased implementation fidelity, academic engagement for Micah decreased to an average of 43% (range: 13 - 54%). The level of academic engagement in the intervention condition for Charlie averaged 90% (range: 75 - 98%), and for Gareth 87% (range: 73 - 96%).

**Fidelity of Implementation.** Implementation fidelity during Intervention by classroom staff for Sebastian, Bailey, Charlie, and Gareth was high and relatively stable, with average percentage of BSP components being implemented with fidelity ranging from 80% to 93%. Fidelity of implementation of BSP components by Micah’s original classroom teacher (i.e., the teacher who received training from the team leader) averaged 100%. Fidelity of implementation of BSP components by the new classroom teacher averaged 51%**.**

**Social Validity**

At the conclusion of the study, the team leaders who completed phases II and III were asked to provide feedback on the acceptability of the training, materials, and procedures to complete the FBFBA process. Team Leaders were asked to rate questionnaire items using a 6-point Likert-like scale (i.e., 1= strongly disagree to 6=strongly agree). The mean rating for “Basic BSP tools were easy to use” was 5.67 (range: 5 - 6). Mean rating for “time spent developing the BSP was reasonable” was 5.50 (range: 4 - 6). Mean rating for “I would suggest this training to other professionals” was 5.67 (range: 5 - 6). The mean rating for “trainings equipped me for developing a function-based BSP with team members in my school” was 5.67 (range: 5 - 6), and mean rating for “I plan to use these procedures with future students” was 5.83 (range: 5 - 6). Additionally, team leaders answered two open-ended questions related to their use of the procedures with other students not related to the study. Four of the six team leaders reported that since the trainings they had used the Basic BSP methods in developing at least one BSP for a student not targeted as part of the study. Two of the six team leaders reported having already used the methods to develop plans for more than two students not targeted as part of the study.

 Participating classroom teachers also completed an acceptability questionnaire consisting of 6-point Likert scale items related to the extent to which their involvement in the Basic BSP process was acceptable, as well as the extent to which they found the BSP strategies acceptable, feasible, and effective in changing student behavior. The mean rating for “time spent developing the BSP was reasonable” was 5.67 (range: 5 - 6). Mean rating for “intervention strategies were appropriate for my classroom” was 5.50 (range: 5 - 6). Mean rating for “BSP resulted in improved student behavior” was 5.50 (range: 5 - 6). Mean rating for “implementing the BSP required a reasonable amount of time and effort” was 5.33 (range: 4 - 6), and the mean rating for “I will continue to use the BSP intervention procedures” was 5.67 (range: 5 - 6).

**DISCUSSION**

The preliminary findings of this study support the efficacy of typical school personnel leading behavior support teams in development and implementation of function-based BSPs for students with mild to moderate challenging behaviors (a task which has typically been the responsibility of individuals with extensive knowledge of behavior analytic principles). Data resulting from the BSP Knowledge Assessment pre/posttest and surveys completed by team members and outside experts provided descriptive documentation that: a) all participants ended the Basic BSP training series with knowledge of the core concepts and processes for building student BSPs, and b) the six Phase I participants who continued on to the second phase of the study were able to lead school-based teams in the development of student BSPs that were perceived as both technically adequate and contextually appropriate. Direct observation data demonstrated: a) high levels of treatment integrity, and b) a functional relationship between the implementation of BSP strategies by typical classroom staff and improvements in student behavior.

**Implications for Practice**

The data resulting from this study have potentially important implications for practice in school settings. First, as previously noted, each of the participating team leaders were reported by district-level support staff to have received training related to FBA and function-based support prior to completing the Basic BSP training series. An assessment of behavioral knowledge indicated that each of the participants possessed conceptual knowledge related to basic behavioral principles, and a self-assessment measure demonstrated that each participating team leader perceived that he or she had a high degree of knowledge related to basic behavioral concepts and theory. However, on the BSP Knowledge Assessment pretest all but one of the participating team leaders failed to demonstrate the key skills needed to transform that knowledge into complete, function-based plans for students with challenging behavior. While we did not assess if the team leaders were effective at building BSPs prior to training, these data highlight the potential importance of building specific behavioral objectives into school-based professional development related to FBA-BSP, and suggest that school personnel should be expected to demonstrate some level of fluency with these skills before being given the responsibility of building function-based support for students.

Second, although the tools and procedures presented in the Basic BSP training series are in no way intended to replace or lessen the need for district-level professionals with extensive behavioral knowledge, study outcomes do suggest the need for: a) a restructured role for district specialists to make more efficient use of their time and expertise, and b) a more complete understanding of how to best structure school-based behavior support teams to address a range of behavioral concerns. For example, district-level behavior specialists might allocate a portion of their time to training qualified school-based personnel in basic FBA-BSP procedures; thereby increasing the number of individuals in a district who can aid in the development and implementation of function-based supports for students with less severe problem behaviors and allowing more students to benefit from effective interventions at the first signs of persistent problem behavior.

**Limitations and Future Research**

There are several limitations that should be considered when interpreting the outcomes of the present study. First, the Basic BSP training sessions were conducted by the first author, who had extensive training in behavior analysis and had previously provided a number of professional development trainings on designing and implementing function-based student supports to a variety of school professionals. Further research is needed to assess whether typical school-based professionals well-versed in FBA/BSP can utilize the Basic BSP materials to effectively train school personnel. The first author also completed FBA teacher interviews, conducted initial student observations, and collected inter-observer agreement data as a second observer. The validity of the study results may be limited by reactivity of participating school staff and students to the presence of the researcher and additional data collectors in the classroom. It should also again be noted that the six Team Leaders who continued on to Phases II and III were school personnel who: a) had a student from their campus who fit the criteria for the study nominated by staff as needing individualized behavioral support, and b) consented to continued participation in the study. This represents a threat to external validity, as it is unclear how these participants differ from those who did not continue on to subsequent study phases.

Another limitation to these findings relates to the study design. Due to the descriptive nature of the data collected in the first two phases of the study, the extent to which team leader effectiveness may have been influenced by previous training related to FBA is unknown. Further studies employing experimental methods are needed to establish a causal link between the Basic BSP trainings and participants’ ability to develop technically adequate, contextually relevant student plans. Also, in the third phase of the study, the use of a non-concurrent multiple baseline design was necessitated by the availability of participants in the schools where the study took place and the timing of BSP development by the school-based teams. While the non-concurrent multiple baseline design does control for the length of time spent in the baseline condition, it does not control for other threats to internal validity (Kratochwill et al., 2010). Replicating the methods used in Phase III employing a concurrent multiple-baseline design would provide the opportunity to establish more convincing experimental control across participants and phases.

Systematic replications and extensions of the methods used in this study including larger participant samples, students from diverse backgrounds and with varying educational and behavioral needs, and using typical school professionals as Basic BSP trainers would allow for greater generalization of study results. Differentiation of effects by student age, grade level, and characteristics would also be helpful in identifying student groups for whom Basic BSP procedures are most effective, thereby maximizing efficiency of support. Further investigation is also needed to assess long-term maintenance of changes in student, teacher and team leader behavior, as well as systematic procedures for actively programming for generalization of newly learned appropriate behaviors to additional settings and in contexts in which the BSP strategies are not being implemented or are being implemented by different staff members. Future research should also include an analysis of the individual components of the Basic BSP training series that are necessary and sufficient to produce desired outcomes for participating school professionals.

 Despite the noted limitations, the results of this study present promising evidence that training typical school-based professionals to lead teams in designing function-based support plans may lead to the development of technically adequate, contextually relevant BSPs that effectively produce improvements in student behavior. More empirical data are needed to: a) replicate the findings of this study for participants with varying characteristics, b) better understand the necessary and sufficient components of the school-based training series, and c) document longitudinal staff and student outcomes. Yet, the findings from this study represent an important contribution to our understanding of how to effectively and efficiently develop and implement function-based support to enhance behavioral outcomes for students in school settings.

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Table 1

*Team Leader Demographics and Test Scores*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Team Leader | Position | Years | FBA Training (w/in 2 yrs) | FBAs Conducted (w/in 2 yrs) | BSPs Developed(w/in 2 yrs) | Behavioral Theory\* | ConceptsTest Score |
| 1 | Learning Specialist | 4 | No | 1-3 | 4-6 | 3 | 100% |
| 2 | SPED Teacher | 5 | No | 10+ | 10+ | 4 | 100% |
| 3 | Learning Specialist | 13 | No | 10+ | 6-10 | 4 | 100% |
| 4 | School Psychologist | 2 | Yes | 4-6 | 4-6 | 4 | 100% |
| 5 | Autism Specialist | 8 | No | 4-6 | 10+ | 4 | 100% |
| 6 | Behavior Specialist | 1 | No | 0 | 4-6 | 5 | 100% |
| 7 | Counselor | 8 | Yes | 1-3 | 10+ | 4 | 91% |
| 8 | Counselor | 19 | Yes | 6-10 | 10+ | 4 | 100% |
| 9 | SPED Teacher | 27 | Yes | 4-6 | 4-6 | 4 | 91% |
| 10 | Resource Teacher | 26 | No | 0 | 0 | 4 | 100% |
| 11 | School Psychologist | 2 | Yes | 4-6 | 10+ | 3 | 100% |
| 12 | Counselor | 5 | Yes | 1-3 | 1-3 | 4 | 100% |
| 13 | School Psychologist  | 12 | Yes | 10+ | 10+ | 5 | 100% |

*\** Participants rated themselves on their knowledge of behavioral theory on a 1 to 5 scale (1= very limited, 5=extensive).

Table 2

*Pre/Post-Test Results: Assessment of BSP Knowledge*

|  |  |  |  |
| --- | --- | --- | --- |
| Participant | Pre Test | Post Test | Percent Change |
| 1 | 63% (A) | 96% (B) | +33% |
| 2 | 67% (A) | 84% (B) | +17% |
| 3 | 69% (A) | 94% (B) | +25% |
| 4\* | 65% (A) | 86% (B) | +21% |
| 5\* | 60% (A) | 88% (B) | +28% |
| 6 | 63% (A) | 90% (B) | +27% |
| 7\* | 43% (A) | 82% (B) | +39% |
| 8 | 61% (B) | 92% (A) | +31% |
| 9 | 63% (B) | 82% (A) | +19% |
| 10\* | 45% (B) | 80% (A) | +35% |
| 11\* | 67% (B) | 90% (A) | +23% |
| 12\* | 61% (B) | 86% (A) | +25% |
| 13 | 80% (B) | 94% (A) | +14% |
| *Mean*  | 62% | 88% | +26% |
| *SD* | .09 | .05 | .07 |

*Note.* Asterisks indicate participants that continued on to lead a team in the development of a student BSP for this study.

**Alternative Behavior**

*Ask to work with a peer*

**Consequence**

*Peers laugh and talk with him, and talk about it after class*

***Function***

*Gain access to peer attention*

**Antecedent**

*Asked to finish homework or write in his journal independently*

**Setting Event**

*Parent brings to school (does not interact with peers on bus)*

**Problem Behavior**

*Out of seat (walking around room), making noises, and talking to peers*

**Consequence**

*Good grades, teacher acknowledgement*

**Desired Behavior**

Complete writing assignment and turn in work

Routine  **1st Period Writing**

*Figure 1*. Sample competing behavior pathway with mock student data.

Intervention

Baseline





% 10 sec intervals







 Sessions

*Figure 2*. Percentage of 10 s intervals with problem behavior and percentage of BSP strategies observed during 20 min sessions. Breaks in the horizontal axis for Bailey, Charlie, and Gareth indicate the week of Spring Break.