

FUNCTION-BASED BEHAVIOR SUPPORT PLANNING COMPETENCIES:  
A NATIONAL SURVEY OF SCHOOL PSYCHOLOGISTS

by

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A DISSERTATION

Presented to the Department of Special Education and Clinical Sciences  
and the Graduate School of the University of Oregon  
in partial fulfillment of the requirements  
for the degree of  
Doctor of Philosophy

September 2015

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## DISSERTATION ABSTRACT

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September 2015

Title: Function-Based Behavior Support Planning Competencies: A National Survey of School Psychologists

This study surveyed a national sample of school psychologists ( $N = 105$ ) regarding their training and skills in function-based behavior support planning. Specifically, this study aimed to determine (a) the function-based behavior support planning competencies practicing school psychologists possess and (b) factors that are related to their level of competency (e.g., prior training). School psychologists were asked to identify strategies as function-based, neutral, or contra-indicated when provided with a brief vignette. School psychologists also reported on demographic characteristics and pre-service and post-graduate training in behavior support planning. Currently, very little is known about the function-based behavior support planning competencies school psychologists possess. This study is among the first to directly assess the ability to link the function of behavior to relevant support strategies. Results of the study indicate that an alarming proportion of school psychologists did not meet the criterion for proficiency on this measure. Interestingly, the current study did not find statistically meaningful differences of performance based on characteristics of prior training. Implications for improving function-based behavior support planning competencies of school psychologists and strategies for improving student supports are discussed.

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## ACKNOWLEDGMENTS

I am deeply indebted to a number of individuals for supporting this work. In particular, I would like to thank Dr. Kimberly Schonert-Reichl, who encouraged my professional development in a most positive and serendipitous manner. I would like to acknowledge the mentorship of the late Dr. Kenneth Merrell, whose indomitable spirit, professional commitment, and genuine compassion I greatly admire. I would like to thank my chair and advisor, Dr. S. Andrew Garbacz, who was instrumental in the development and completion of this work. Dr. Garbacz was ever supportive throughout the process and his encouragement enabled me to persevere. I would like to thank my committee members, Dr. Laura Lee McIntyre, Dr. Rick Albin, and Dr. Gina Biancarosa, for making the work stronger through their valuable input and generosity of time. I also wish to acknowledge those who contributed to the development of earlier forms of the assessment instrument utilized in the current study, in particular Dr. Kathleen Strickland-Cohen. I wish to thank the National Association of School Psychologists for permission to recruit participants from their membership. Lastly, I am deeply appreciative for the generous support of this research provided in part by Dynamic Measurement Group (Doctoral Research Award and the Dynamic Measurement Group Award).

For my family, who provided me with the priceless gift of unconditional love.



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## CHAPTER I

### INTRODUCTION AND LITERATURE REVIEW

#### **Statement of Purpose**

This study investigated the function-based behavior support planning competencies practicing school psychologists possess, and its relation with other relevant variables (e.g., prior training). A growing body of research documents that behavior support plans developed from functional behavior assessment information are more likely to result in desired behavior change (Carr & Langdon, 1999; Didden, Duker, & Korzilius, 1997; March & Horner, 2002; Marquis et al., 2000). However, relatively little is known about current skills of school psychologists in function-based behavior support planning, or how skills are related to other relevant variables. A small body of research suggests that, although some school personnel may have training related to functional behavioral assessments and function-based behavior support planning, current behavior support plans are seriously flawed. Specifically, research exploring current behavior support planning practices in American school systems have documented technically inadequate functional behavior assessments (Gable, 1999), little or no correspondence between functional behavior assessment data and the content of behavior support plans (Van Acker, Boreson, Gable, & Potterton, 2005), and that the majority of behavior support plans from typical school teams may be rated as legally indefensible and substantively inadequate (Cook, Crews, Browning Wright, Mayer, Gale, Kraemer, & Gresham, 2007; Yell, 2002).

Inaccurate functional behavior assessment data call into question the validity of information gathered as well as the efficacy of behavior support plans. As a result,



children may not be receiving functionally-relevant behavior supports, which may have a negative impact on their academic achievement and social-emotional functioning. The purpose of this study is to determine the function-based behavior support planning competencies of practicing school psychologists and how those competencies are related to pre-service and post-graduate training experiences. This information is needed in order to inform our knowledge about competencies practicing school psychologists possess. Implications of this study include an expanded understanding about function-based behavior support planning competencies of school psychologists and factors which may be important to consider when identifying approaches to increase behavior support planning competencies (e.g., more post-graduate training).

### **Literature Review**

The most important mission for schools is to promote the academic success and positive social-emotional development of children. To do this, school staff must be adept at providing (a) high quality effective instruction, (b) a safe and supportive emotional climate for all students, and (c) community-building and cooperation. Unfortunately, schools face numerous challenges in meeting these very important missions, including increased pressure and accountability from federal and state legislation, non-cohesive curriculum and standards for effective practice, lack of a direct link from research to practice, and decreasing resources (Darling-Hammond, 2009; Merrell, Ervin, & Gimpel, 2006). The student population in the United States is also undergoing changes, with increasing proportions of students at-risk for academic failure and problem behavior (Merrell et al., 2006). Many students, with and without documented disabilities, may

need supplemental and/or individualized supports in order to be successful academically and behaviorally.

Rates of severe problem behaviors, such as aggression and anti-social behavior, are on the rise in schools and an estimated 3-5% of students will have on-going and severe behavioral difficulties throughout their school careers (Greenwood, Kratochwill, & Clements, 2008; Kinch, Lewis-Palmer, Hagan-Burke, & Sugai, 2001). Externalizing behaviors (e.g., physical aggression) negatively impact students exhibiting the behavior, their peers, and their teachers. Specifically, estimates from applied research suggest that addressing minor disruptive or off-task behavior may take up as much as half of classroom time, thereby significantly reducing the number of instructional minutes students receive (Cotton & Wikelund, 2001). Although the proportion of students exhibiting severe challenging behaviors appears small, the amount of time, resources, and individualized supports these students need to be successful are substantial (Kinch et al., 2001).

Schools are also responsible for supporting students, including those with and without disabilities, who exhibit a wide range of behavior problems that impact their academic learning and the learning environment of their peers (Merrell et al., 2006). Thus, students exhibiting chronic problem behavior may need additional behavioral supports beyond what is implemented in the general education classroom (Gable, Hester, Rock, & Hughes, 2009; Lane, Givner, & Pierson, 2004; Theodore, Bray, & Kehle, 2004; Tingstrom, Sterling-Turner, & Wilczynski, 2006).

Unfortunately, the support provided to teachers has not kept pace with these changing dynamics – there is limited pre-service training and on-going professional

development on how to effectively teach and manage students with a wide variety of needs (Darling-Hammond & Richardson, 2009). Moreover, classroom management issues have been consistently cited as one of the major contributors to teacher burnout and attrition (Ingersoll & Smith, 2003).

School psychologists are in a prime position to assist teachers in effectively supporting students with behavior problems. One method that has been overwhelmingly supported in the literature is the use of functional behavior assessment information to develop individualized function-based positive behavior support plans for students in need (Carr & Langdon, 1999; Didden et al., 1997; Marquis et al., 2000; March & Horner, 2002). Functional behavior assessments involve working with a professional to identify environmental factors that may establish and maintain behaviors in the classroom. Once relevant environmental variables and the function of the problem behavior is understood, this information can be used to develop a specific behavior support plan that is individualized to meet the needs of the student. Function-based behavior support plans should directly address the problem behaviors, their function(s) and variables related to their occurrence (e.g., setting events, antecedents, and consequences). The goal of function-based behavior support plan implementation is to reduce problem behavior by manipulating environmental variables such that the probability of problem behavior is reduced, alternate appropriate behavior is encouraged, and new appropriate skills are acquired by the student.

### **Fundamental Principles of Function-Based Behavior Support**

Positive behavior support was developed by applying principles from behavior analysis to address problem behaviors that cause social problems (Cooper et al., 2007).

Functional assessment is the technology to understand behaviors in their environmental contexts. The foundation of functional assessment is to apply behavioral principles to the real world, including school settings.

Behavior analysis has identified the basic principles of functional relationships between environmental events and behaviors (Baer, Wolf, & Risley, 1968/1987; Cooper et al., 2007; Skinner, 1974). One of the primary tenets of behavior analysis is that behavior is shaped and maintained by the direct consequences (events) following the behavior. This type of learning, *operant conditioning*, also establishes functional relations between behavior and certain antecedent conditions (Cooper et al., 2007). Skinner (1974) described this fundamental relationship as a *three-term contingency*. Skinner's three-term contingency states that the relation between the setting (antecedent) and the behavior exists because of consequences that have occurred in previous setting-behavior relations (Cooper et al., 2007).

There are two types of consequences: reinforcers and punishers. Each consequence type can further be divided into positive or negative categories. Consequences that increase or maintain the occurrence of operant behaviors are called *reinforcers*. A *positive reinforcer* is a consequence that increases or maintains the occurrence of operant behaviors by the addition of something to the situation. A *negative reinforcer* is something that is removed from the situation that increases or maintains the operant behavior. Consequences that decrease the occurrence of operant behaviors are called *punishers*. *Positive punishment* is when something is added that decreases the behavior and *negative punishment* describes when something is removed that leads to

decreased behavior. When a problem behavior is maintained by a specific consequence, the consequence is said to be the *function* (e.g., purpose) of the behavior.

It is important to note that reinforcers and punishers are idiosyncratic and context-specific. In other words, whether something is a reinforcer or punisher varies across individuals and situations. For example, while appropriate behavior may be reinforced by verbal praise for some, verbal praise may not reinforce appropriate behavior for others.

In addition to consequences, the environmental events occurring before a certain behavior can predict how likely the behavior is to occur. This type of environmental event is called an *antecedent* (Cooper et al., 2007). Thus, the basic three-term contingency consists of an antecedent, which predicts the occurrence of the operant behavior, and the operant behavior is then reinforced or punished by the consequence (Cooper et al., 2007).

An antecedent stimulus is an environmental stimulus that sets the occasion for a response to occur. In contrast, a *setting event* (also called an *establishing operation* or *motivating operation*) is an environmental event, operation, or stimulus condition that temporarily changes the value of a reinforcer or punisher, and thus modifies the likelihood that a response will occur (Laraway, Snyckerski, Michael, & Poling, 2003; Michael, 1993). Overall, the primary distinction between antecedents and setting events are that the former involves the ability of a stimulus to elicit a particular type of behavior via past consequences, whereas the latter is related to the differential reinforcing effectiveness of environmental events (Michael, 1993). Generally, the time between a

setting event and response is longer (hours or days), whereas responses occur more immediately after an antecedent stimulus is presented.

Figure 1 summarizes the functional relationship between an operant behavior and its previous environmental events both distal (setting events/motivating operations) and proximal (antecedents) and the environmental events (consequences) that follow the behavior.

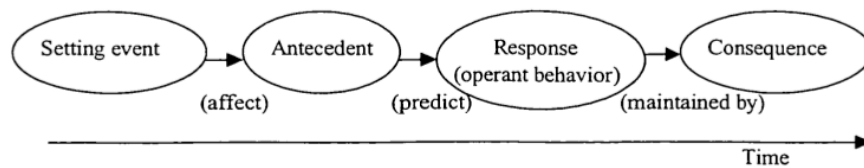


Figure 1. Summary of the functional relationship between operant behavior and previous environmental events.

**Principles of functional behavior assessment.** Understanding the elements of operant conditioning are important when examining the behavior of school-age students. A process for examining the relationship between student behavior and environmental variables is called a functional behavioral assessment (Broussard & Northup, 1995; Gresham, Watson, & Skinner, 2001; Hanley, Iwata & McCord, 2003). Functional assessment techniques have a longstanding history within the field of applied behavior analysis and are strongly supported by over five decades of research (Cooper, Heron, & Heward, 1987; Ervin, Ehrhardt, & Poling, 2001; Gresham, 2003; Loman & Horner, 2013; Nelson, Roberts, Rutherford, Marquis et al., 2000; Mathur, & Aaroe, 1999; Sugai, Lewis-Palmer, & Hagan-Burke, 2000).

*A functional behavior assessment (FBA)* is a process designed to aid educators in

determining plausible functions for students' problem behavior in order to create an individualized behavioral intervention plan that reduces problem behavior and encourages socially acceptable behavior. Although there is no single definition of a FBA, it could be described as a systematic process for gathering information about setting events, antecedents, behaviors, and consequences in order to determine the function of behavior and to maximize the effectiveness and efficacy of behavior support (Gresham, Watson, & Skinner, 2001). The purpose of the FBA process is to develop an effective behavior support plan that addresses the function of an individual student's problem behavior and has the contextual fit needed for practical implementation (Albin, Lucyshyn, Horner, & Flannery, 1996). *Contextual fit* refers to the congruence, or compatibility, that exists between specific features and components of a behavior support or support plan and a variety of relevant variables relating to the individuals, their environments, and their support staff (Albin et al., 1996). The goal is to develop behavior support plans that are both technically sound and developed with a high degree of contextual fit in order to increase the likelihood of effective implementation within school settings. A significant body of research demonstrates that, when implemented with fidelity, function-based interventions and supports based on FBA information are an effective method for supporting students who exhibit challenging behaviors in school settings (Carr & Langdon, 1999; Didden et al., 1997; Marquis et al., 2000; March & Horner, 2002).

Findings indicate that the most efficacious FBAs include operational definitions of target behavior(s), determination of the function of behavior, a hypothesis statement, and an alternate/competing behavior pathway (Cooper et al., 1987; Gresham, 2003; Sugai

et al., 2000). There are several primary outcomes of FBAs: (1) description of the behavior, (2) identification of the events, times and situations that predict when the problem behavior is likely and unlikely to occur, (3) identification of maintaining consequences, and (4) development of a summary statement or hypothesis of the function of behavior (Cooper et al., 1987; Gresham, 2003; Sugai et al., 2000). The most important outcome of the FBA process is to determine a plausible function of the problem behavior. Once the environmental factors that contribute to the problem behavior are identified (such as setting events, antecedents, and maintaining consequences) they can be manipulated to reduce problem behaviors and support appropriate behavior

**Function-based assessment in applied settings.** Functional behavior assessment techniques have a large extant literature base, but most studies examining FBAs have been conducted under controlled conditions in clinical settings, implemented by researchers, and with children with severe disabilities with a wide range of behavioral issues (Cooper et al., 2007; English & Anderson, 2006; Marquis et al., 2000; Stichter et al., 2004; Vollmer & Smith, 1996). Far less is known about utilizing this technique within school settings (Anderson, English, & Hedrick, 2006; Hanley et al., 2003).

Researchers have advocated for a logical progression of research from efficacy, or internal validity, to effectiveness, or external validity, with each part constituting an important aspect of empirical support for intervention procedures (Weisz, 2000). The results of effectiveness research will help determine whether the findings from the efficacy research translate into similar effects when employed with a broadly defined student population and with naturally varying implementation and adherence levels (Flay, 1986). This suggests that research is needed that directly assesses current practices of



natural treatment agents in real-world settings (e.g., current skills of practicing school psychologists).

In recognition of the need for school personnel to implement evidence-based practices when developing behavioral interventions, the option to utilize the functional behavior assessment process was first introduced in the 1997 reauthorization of the Individuals with Disabilities Education Act (IDEA). Later, the 2004 reauthorization of IDEA (2004) mandated the use of FBA under specific circumstances, such as in cases where a student with a documented disability has been suspended for 10 days due to a behavior that may be a manifestation of their disability (Crone & Horner, 2000; Drasgow, Yell, Bradley, & Shriner, 1999; Wright & Wright, 2010). These legislative initiatives may be partly responsible for FBA technology becoming the currently most commonly used method for linking assessment to intervention for individuals with severe challenging behavior in schools (Blood & Neel, 2007; Sugai et al., 2000; Vollmer & Smith, 1996). Despite the widespread use of FBA and behavior support planning in schools, the body of intervention research on the use of functional assessments conducted in school settings is currently limited (Anderson et al., 2006; Cooper et al., 2007; Scott, Bucalos, Liaupsin, Nelson, Jolivette, & DeShea, 2004; Shriver, Anderson, & Proctor, 2001; Shumate & Wills, 2010).

Preliminary studies investigating the use of FBA in schools have demonstrated that there is a gap in findings from FBA processes and corresponding behavior support plans that are implemented in school settings (Blood & Neel, 2007; Van Acker, Boreson, Gable, & Potterton, 2005). Other examinations of FBA practices in schools found an alarming rate of poorly operationalized behavioral definitions, missing hypothesis

statements, missing alternate behaviors, and FBAs that were not linked to behavior intervention plans (Blood & Neel, 2007; Van Acker et al., 2005). Some experts have argued that federal mandates have preceded empirical research by supporting the use of FBA in general education settings (Conroy, Clark, Gable, & Fox, 1999; Nelson, Roberts, Rutherford, Mathur, & Aaroe, 1999). Furthermore, researchers continue to acknowledge that FBA is a time-intensive process that requires highly motivated and well-trained staff to implement effectively (Gable & Hendrickson, 1999). However, even the most complex functional behavioral assessment methodology, such as functional analysis, have been demonstrated in the literature to be quite possible, practical, and efficacious in school settings (Broussard & Northup, 1995a; Mueller, Nkosi, & Hine, 2011). What is missing from extant literature investigating FBA is an understanding of the function-based behavior support planning competencies school personnel who are often responsible for these tasks (e.g., school psychologists) possess. In addition, it is important that we understand what factors may influence these competencies (e.g., prior training).

**Behavior support plans.** The most important outcome of the FBA process is the link to intervention planning. A function-based *behavior support plan* (BSP) is an individualized, multi-component plan that utilizes FBA information gathered to develop strategies to re-arrange environmental contingencies while also teaching alternate desired behaviors (Sugai et al., 2000). The BSP addresses the function of the student's behavior and introduces specific steps to prevent problem behavior, teach and reinforce alternate appropriate behavior, and respond to problem behavior in ways that minimize its

reoccurrence and maximize safety (Cooper et al., 2004; English, & Anderson, 2006; Hanley et al., 2003; Loman & Horner, 2013; Sugai et al., 2000).

Components of an effective BSP have been articulated by several researchers (Benazzi, 2005; Drasgow, Yell, Bradley, & Shriner, 1999; Horner, 2000). A review of the literature reveals general consensus that function-based behavior support plans should include (a) antecedent strategies to neutralize or eliminate identified setting events and antecedents that “set up” or “trigger” problem behavior (making the behavior irrelevant), (b) strategies for systematically and explicitly teaching alternative and desired behaviors that will enable the student to access desired consequences in a more socially acceptable manner (making the problem behavior inefficient), and (c) consequence strategies that both minimize reinforcement following problem behavior and use incentives and positive attention for appropriate behavior thus making the problem behavior ineffective (Benazzi, Horner, & Good, 2006; Crone & Horner, 2003; Horner & Carr, 1997; O'Neill et al., 2015).

One tool that can assist in directly relating FBA data to a function-based behavior support plan is a competing behavior pathway (Crone & Horner, 2003; O'Neill et al., 2015 Sugai et al., 2000). The *competing behavior pathway* identifies and describes an adaptive behavior that fulfills the same function as the current problem behavior. This may be organized in a graphical model that includes the (1) setting events and antecedents, (2) desired behavior, problem behavior and alternate behavior, and the (3) consequences that maintain the behavior (Gresham, Watson, & Skinner, 2001). The behavior support team members complete the competing behavior pathway model using the information from the FBA summary statement along with selected operationally

defined alternate and desired behaviors. Figure 2 shows an example of a competing behavior pathway.

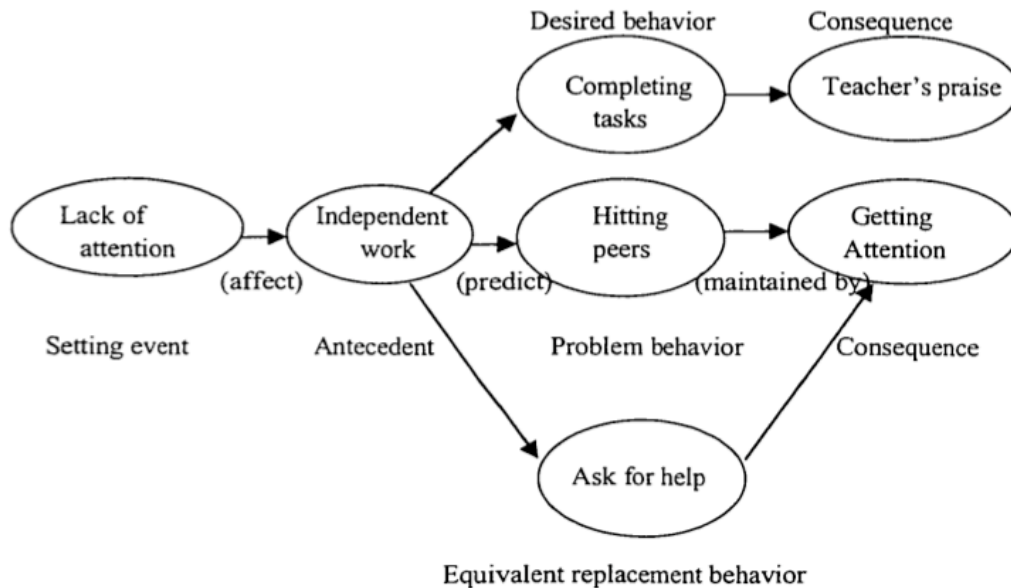


Figure 2. Example of a competing behavior pathway for problem behavior maintained by gaining attention.

**Behavior support strategies.** There are several types of behavior support strategies: (a) antecedent, (b) teaching, (c) reinforcement of alternate behavior, and (d) consequence (in response to both appropriate and inappropriate behavior). In some cases, a crisis or safety plan should also be specified. Albin et al. (1996) suggest BSP development team members also determine whether or not BSP strategies are contextually appropriate by considering (a) the values and skills of the implementers, (b) the resources available for implementing the BSP, and (c) the level of administrative support provided for BSP implementation.

It is important to highlight that each strategy needs to be function-based. A *function-based strategy* directly addresses the function of the problem behavior and is

expected to improve behavior by reducing the frequency and/or severity of problem behavior while increasing an adaptive alternate behavior. For example, if a student's problem behavior is maintained by escape from difficult academic task demands, a function-based strategy could be to allow the student to take a break after completion of a specified portion of a task. A *neutral strategy* is an intervention that might be effective or is a good behavior management practice, but is unrelated to the function of the problem behavior. For example, reminding all students that one of the behavior expectations within the classroom is to complete work as assigned and to seek assistance in an appropriate manner if needed. A *contraindicated strategy* is an intervention that conflicts with the function of the problem behavior by providing access to maintaining consequence(s) following problem behavior. An example of a contraindicated strategy for a student whose problem behavior is maintained by escape from difficult academic task demands would be to send the student to the principal's office following problem behavior. By this logic, implementation of a contra-indicated strategy is likely to increase the frequency or severity of the problem behavior (Cooper et al., 2007). Thus, it is imperative that no contraindicated strategies are included in a BSP, as use of these approaches may sabotage its effectiveness (Cooper et al., 2007; O'Neill, Horner, Albin, Sprague, Storey, & Newton, 1997).

***Antecedent strategies.*** The goal of antecedent strategies is to prevent or minimize the probability of problem behavior occurring by manipulating setting events or antecedent conditions (Cooper et al., 2007). Behavior interventions can be enhanced by including steps to minimize the likelihood of a setting event or to neutralize the effect of a setting event (Horner, Vaughn, Day & Ard, 1996; Day, & Day, 1997). For example, if

fighting with peers before school increases the likelihood of aggression during the school day, antecedent strategies could include increasing supervision on the bus (blocking the setting event) or allowing the student to have a 10 minute relaxation break before entering the classroom following a fight (neutralizing the setting event).

***Teaching strategies.*** The goal of teaching strategies is to provide the student with direct instruction on new skills needed to be successful in the classroom or to teach a desired, alternate behavior (Cooper et al., 2007). The alternate behavior is one that serves the same function as the problem behavior, and is a behavior that the student already engages in or can be quickly and easily taught. This behavior acts as a short-term solution while the team implements the BSP strategies aimed at teaching new skills and increasing desired behaviors. *Desired behavior* is what school staff would ultimately like the student to do under the conditions in which the problem behavior is currently occurring. In addition to operationally defining the desired behavior, the team also specifies the anticipated maintaining consequence(s) for the desired behavior, which may or may not be those currently maintaining the problem behavior (Horner et al., 2011). For example, if a student becomes disruptive in order to avoid difficult math tasks, an alternate behavior of appropriately asking for a short break could be explicitly taught.

***Reinforcement strategies.*** The goal of reinforcement strategies is to change the environment to ensure that appropriate behaviors are reinforced and reinforcement for problem behavior is minimized or eliminated (Cooper et al., 2007). The reinforcement can be changed in frequency or quality. For example, if the goal is to increase homework completion and the student currently only receives verbal praise from the teacher one out of ten occurrences of completed homework, a reinforcement strategy to increase the

frequency/density of reinforcement could be to provide the student with verbal praise every time he completes his homework. To increase the quality of reinforcement, the strategy could include providing a behavior specific praise statement rather than a general praise statement. It is important to stress that reinforcers are idiosyncratic, thus a reinforcer preference assessment can be quite valuable in selecting reinforcers (Cooper et al., 2007).

***Consequence strategies.*** The goal of consequence strategies is to minimize or block the reinforcing consequence following problem behavior (Cooper et al., 2007). Sometimes, problem behavior will occur despite the adequate planning and implementation of antecedent, teaching, and reinforcement strategies. Therefore, it is important for function-based behavior support plans to also include a plan for how to respond when problem behavior occurs. Positive consequence strategies can include such strategies as planned ignoring of the problem behavior and differential reinforcement of an alternate behavior. For example, if a student talks out during whole group instruction and the behavior is maintained by adult attention, one strategy could be a plan for the teacher to ignore the talk-out and instead praise a peer for having a quiet voice. The teacher would then plan to also praise the target student at a higher rate than peers when the target student has a quiet voice during whole-group instruction.

Negative consequences (e.g., punishment) are also sometimes included in school district behavior guidelines for serious behavior violations. For example, receiving an out of school suspension for bringing a weapon to school. Aversive consequences are often favored by school staff and often result in an immediate (albeit short-term) reduction of the problem behavior (Sugai & Horner, 2002). However, aversive

consequences should not be used in isolation because this type of consequence does not promote positive behavior development and may even increase the frequency and intensity of serious problem behavior in the long-term (Sugai & Horner, 2002).

**Additional behavior support plan components.** Behavior support plans also need to include an action plan for implementing and evaluating the effectiveness of the BSP. The action plan should specify (a) the person(s) responsible for implementing each aspect of the plan, (b) a timeline for implementation and progress monitoring of the plan, (c) the long- and short-term objectives, and (d) the specific activities that will be undertaken and procedures that will be used to meet those goals (Browning-Wright, Mayer, & Saren, 2007). Data should be collected and used to track progress toward a goal by comparing baseline data with intervention data. In addition, treatment plan implementation data should be collected to determine the extent to which the plan is being implemented as designed.

In sum, in order to develop technically sound behavior support plans, educational personnel must have pre-requisite knowledge on the conceptual basis of behavioral theory, be able to accurately interpret FBA data, be able to connect the hypothesized function of behavior to antecedent, teaching, reinforcement, and consequence strategies, and consider the needs and characteristics of the individual student and classroom context. Perhaps not surprisingly, there are currently very few individuals with the expertise and training to develop behavior support plans independently and with high technical adequacy (Benazzi et al., 2006; Browning-Wright et al., 2007).

In the following section, a thorough review of the literature will be summarized. The review will focus on selected research on current behavior support practices in



schools including the quality of BSPs, the function-based behavior support planning competencies school personnel possess, the influence of prior training on function-based behavior support competencies, and an overview of preliminary studies examining the effects of training on function-based behavior support planning competencies. The section concludes with the identification of how the current study served to fill gaps in the extant literature.

### **Behavior Support Practices in Schools**

Despite the promise of using FBA data to inform function-based behavior support plans, current research clearly indicates that simply providing school-based behavior support teams with FBA information is not sufficient to ensure that BSP development will be guided by FBA results (Benazzi et al., 2006; Cook et al., 2007; Scott et al., 2005; Scott & Kamps, 2007; Van Acker et al., 2005). In order for BSPs to be guided by FBA results in schools, school personnel need a thorough understanding of the steps necessary to explicitly link the function of problem behavior to function-based behavior support strategies (Benazzi et al., 2006; Browning-Wright et al., 2007; Scott et al., 2005). Thus, it is important to understand the impact of training on function-based behavior support planning competencies.

**Practices of school psychologists.** A review of the literature indicates that very little is known about the perceptions and practices of school psychologists regarding the FBA process (Nelson, Roberts, Rutherford, Mathur, & Aaroe, 1999; Nusz, 2008). Specifically, this review yielded only two studies that surveyed school psychologists about perceptions and practices of the FBA process (Nelson et al., 1999; Nusz, 2008). Further, no studies were found that examined the competencies or practices of school

psychologists regarding function-based behavior support planning, which is the primary purpose of conducting an FBA.

A study by Nelson et al. (1999) surveyed 111 school psychologists and 105 special education administrators regarding their views of current FBA practices. Results indicated that special education administrators and school psychologists are more likely to believe that conducting FBAs with students who exhibit low-level chronic problem behavior (e.g., noncompliance) is more useful and compliant with best practices in FBA than for low-frequency but high-level behavior (e.g., violation of drug policies). These results may indicate that school psychologists may not be conducting an FBA in all cases when an FBA would be useful.

Nusz (2008) conducted a national survey of 287 school psychologists on their current practices and perceptions regarding their skill in conducting functional behavior assessment. Nusz found considerable variability in “typical” FBA practices, particularly with regard to data collection methods, reasons for which an FBA is conducted, and content included in the FBA. This variability in quality and content may have a negative impact on the development of function-based BSPs, as developers may not have access to accurate or useful FBA data. To assess this possibility, participants were asked how often BSPs and FBAs were written to correspond with one another. Findings indicate that in nearly half of the cases, FBAs and BSPs were not developed in tandem. This suggests that although time and energy were devoted to determine the maintaining functions of the problem behavior, a BSP was not developed and implemented to address the problem behavior. Furthermore, a considerable number of school personnel appear to address problem behaviors by utilizing generic behavior interventions, rather than by

developing behavior support plans that are linked to the functions of the student's problem behavior. However, additional research is needed to determine the current BSP development practices of school psychologists.

**Practices of other school personnel.** The next section provides a brief review of the literature regarding the current practices of school personnel other than school psychologists and highlights key findings. Unfortunately, an examination of this literature is deeply concerning. Several studies have documented that (a) BSPs are often not created following FBAs (b) BSPs are often not included in Individual Education Plans, and (c) teachers, who are supposed to be the implementers of the intervention, are often unaware of the BSP that is developed and do not deliver function-based strategies (Blood & Neel, 2007; Nusz, 2008).

Across studies that reviewed school based BSPs, the majority contained problems in one or more critical areas (Blood & Neel, 2007; Cook et al., 2007; Van Acker et al., 2005). In particular, the BSPs provided little or no indication that the teams used information related to the function served by the behavior in their design of the BSP (Blood & Neel, 2007; Cook et al., 2007; Sugai et al., 1998; Van Acker et al., 2005). Of even greater concern, a number of the plans actually recommended the use of a contraindicated strategy. This is highly problematic because BSPs that are not function-based are not likely to result in positive student outcomes. Even more disturbing, the inclusion of contraindicated strategies in BSPs could result in an increase in the problem behavior (Benazzi et al., 2006; Browning-Wright et al., 2007; Cooper et al., 2007).

The finding that the majority of BSPs were rated as inadequate may be due to the fact that educators are not adequately prepared by training programs and districts to

effectively develop BSP plans. In fact, plans developed by educators who were identified as the most experienced and skilled in their regions were often considered inadequate as well (Cook, et al., 2007). This raises questions about whether educators are equipped with the necessary knowledge and skills needed to competently develop behavior support plans (Conroy et al., 2002; Gresham et al., 2001; Scott & Nelson, 1999; Smith, 2000).

In summary, it is clear from the above review on current practices that school personnel have difficulty in developing BSPs that include function-based behavior support strategies (Blood & Neel, 2007; Conroy et al., 2002; Cook et al., 2012; Gresham et al., 2001; Medley, Little, Akin-Little, 2008; Scott & Nelson, 1999; Smith, 2000; Van Acker et al., 2005). However, we cannot determine from this body of literature the specific skills individuals possess. In addition, more work is needed that assesses the relationship between the skills of the person(s) developing the BSP and their prior training. Moreover, it is difficult to determine whether school personnel simply lack the prerequisite skills needed to develop function-based BSPs or are failing to use FBA data for other reasons. It is possible that these skills are not successfully being transferred to practicing school personnel through current professional development.

### **Behavior Support Plan Competencies of School Personnel**

It is clear that there is a strong need for school personnel to have support and direction in order to effectively use the FBA process to develop appropriate behavior support plans within school settings. To the author's knowledge, to date there have been no studies conducted that have directly assessed school psychologists' competencies in selecting appropriate function-based behavior support strategies. However, an examination of the literature indicates a small body of research that has directly assessed

the competencies of other school personnel. Most studies have examined the skills of teachers (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002; Myers & Holland, 2000) and one study has examined the skills of a variety of school personnel including teachers and specialists (Strickland-Cohen & Horner, 2015).

Across studies with teacher participants, findings suggest that the majority of teacher participants were unable to successfully identify or develop function-based behavior support strategies when provided with hypothetical student data such as vignettes, FBA data summaries, and/or videos of student behavior (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002; Myers & Holland, 2000). This suggests that teachers place little emphasis on the motivation behind a student's behavior when selecting behavior support strategies.

**Effect of the provision of FBA data on competencies.** Several studies have provided FBA data that explicitly specifies the function of problem behavior along with the types of hypothetical student data described above. Together, these studies demonstrate that teachers are more likely to select appropriate BSP strategies when provided with a statement of the hypothesized function of the problem behavior (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002). Specifically, results from Mitachi (2002) indicate that participants with FBA information, regardless of training group, were more likely to correctly identify the problem behavior, its function, and function-based behavior strategies. Yet discouragingly, many participants in the above studies had some difficulty identifying the problem behavior and function of behavior despite receiving FBA data (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002). Not surprisingly, most participants were also not accurate in identifying appropriate function-

based behavior support strategies (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002).

**Effect of basic behavioral theory knowledge on competencies.** One possible explanation is that the participants lacked the prerequisite knowledge in the basics of behavioral theory on which function-based behavior support is predicated. However, currently available evidence suggests that this explanation is not supported. For example, Strickland-Cohen (2011) administered a descriptive assessment measuring behavior support planning competencies to a group of thirteen school personnel who served as BSP team leaders. Participants included school psychologists, counselors, behavior specialists, Autism specialists, learning specialists, and special education and resource teachers. Of note, all participants demonstrated competence in their knowledge of basic behavioral concepts by an average score of 98% correct on a 5-item measure. Next, participants were administered a test developed to directly assess knowledge of core BSP development features (Behavior Support Plan Knowledge Test, adapted from Benazzi, Nakayama, Sterling, Kidd, Davis, & Albin, 2003). The instrument consists of three open-ended questions related to critical components of BSPs and five test vignettes of mock student case examples, including behavior support strategies that participants were asked to rate as either “function-based,” “neutral,” or “contraindicated” based on the information provided. The percentage of correctly identified behavior support strategies was calculated. The average participant score was 62% correctly identified behavior support strategies and scores ranged from 43% to 80%. Of concern, only one of the participants displayed adequate BSP knowledge (i.e., a score of at least 80% on the pretest assessment), despite all participants exceeding minimum competency on basic

behavioral theory. These results indicate that a basic understanding of behavioral theory is necessary but not sufficient to enable school personnel to select function-based behavior support strategies. In addition, individuals who serve as BSP team leaders may not possess the more advanced prerequisite skills for developing accurate function-based behavior support plans. It is important that future research examine whether this is also true of school psychologists, as there is currently no findings that directly assesses the function-based behavior support planning competencies that school psychologists possess.

In sum, the research described above indicates that school personnel lack the skills and knowledge needed to develop technically adequate behavior support plans, even when personnel demonstrate competency in basic function based knowledge. Moreover, no studies have been conducted directly assessing the competencies school psychologists possess in function-based behavior support planning. Thus, we cannot assume these findings hold true for school psychologists. Clearly, there is a need to determine the true level of skill school psychologists possess by utilizing direct assessments such as those described above with a large representative sample.

### **Training of School Psychologists and School Personnel**

The above research indicates that the majority of BSPs are inadequate and that, overall, school personnel do not have strong competencies in function-based behavior support planning. This may be due to the fact that school personnel are not adequately prepared by pre-service and post-graduate training to effectively develop BSPs. It has also been suggested that initial, acquisition-level training may not be sufficient, and that ongoing support for BSP teams may be necessary in order to ensure that teams can

develop technically adequate BSPs (Scott et al., 2005). Thus, it is imperative to examine the potential impact of previous training on the implementation of function-based behavior support planning competencies.

**Influence of training on competencies.** Training is an important factor in the ability for school personnel to increase function-based behavior support planning competencies. Research has shown that teachers without any prior training were unable to identify appropriate function-based behavior support strategies, even though half were provided with FBA data (Hsiao & Albin, 2000). In contrast, Mitachi (2002) found that teachers with prior training in linking FBA data to BSP strategies were more likely to select function-based strategies. Participants with prior training and who were provided with FBA data were the most likely to successfully identify function-based strategies. Similarly, Van Acker et al. (2005) found that school based BSP development teams with at least one participant trained in function-based behavior support planning were more likely to include procedures to verify the hypothesized function of the behavior, develop a clear BSP that considered and linked the function of the target behavior when developing the desired alternate behavior, employed positive behavioral supports, and included plans to evaluate the effectiveness of the intervention. Benazzi (2005) also found that BSPs developed by behavior specialists (individuals with verifiable training and knowledge) alone or as part of a team were more likely to be technically adequate than plans developed by teams without a behavior specialist. Specifically, BSPs developed with behavior specialists were more likely to contain strategies consistent with the function of problem behavior and include preventative strategies and programmed consequences for minimizing problem behavior. Taken together, these studies provide



preliminary evidence that training in function-based behavior support planning may be a prerequisite for demonstrating competence in function-based behavior support planning.

*Amount and effectiveness of training of school psychologists.* To date, no studies have specifically examined school psychologists' prior training in function-based behavior support planning. However, a few studies have examined related skills of school psychologists. One study examined school psychologists' perceived ability to conduct FBAs and found that the majority of school psychologists reported familiarity with the FBA process and have received post-graduate training in FBA (Nusz, 2008). In contrast, a survey conducted by Nelson et al. (1999) found that school psychologists and special education administrators perceive their training in FBA to be inadequate. Taken together, school psychologists report having received training in the FBA process, but may feel that this training was inadequate to prepare them for actual implementation.

Another study examined the relationship between school psychologists' pre-service training and perceptions of their own consultative skills with a national survey of 1,020 National Association of School Psychologists (NASP) members (Costenbader & Swartz, 1992). Although consultative skills are not directly related to identifying function-based behavior support strategies, the study provides some insight into the relationship of training and self-reported training effectiveness to school psychologists' competencies. Results indicated that participants who reported more time spent in pre-service training were more likely to rate the quality of their training higher than participants who reported less time spent in pre-service training. Thus, it appears that the amount of training is positively related to the perceived effectiveness of training. However, more research is needed to examine the relationship between specific training

variables such as amount and perceived effectiveness of training to the function-based behavior support planning competencies school psychologists possess.

*Amount and effectiveness of training of teachers.* Although little research has been conducted specifically on how to ensure school psychologists transfer their function-based behavior support planning competencies to adequate implementation of BSPs, it is reasonable to expect that this would vary according to the school psychologists' prior training and experience (Harnett & Dadds, 2004). Therefore, the amount and effectiveness of training and highest degree earned may be important and malleable variables to examine.

Although research in this area with school psychologists is limited, examining the relevant literature base on variables affecting teacher skill acquisition and implementation through post-graduate training reveals some important considerations. Across studies, research has demonstrated that student outcomes are unlikely to improve without a change in school personnel's knowledge, skills, practices, and even attitudes and beliefs (Guskey, 1986; Guskey & Sparks, 1991). Joyce and Showers (1980) also note that mastering new teaching skills (e.g., function-based behavior support strategies recommended in BSPs) requires teachers to behave differently in the classroom. Successfully learning a new behavioral repertoire requires modeling, practice, and feedback (Guskey & Sparks, 1991; Tortu & Botvin, 1989).

Professional development has been documented in the research as a necessary step towards competency, however, it is often not sufficient to improve teacher management strategies within the classroom (Sawka, McCurdy, & Mannella, 2002; Shapiro, Miller, Sawka, Gardill, & Handler, 1999; Sutherland, Wehby, & Copeland, 2000). For example,

Sutherland et al. (2000) demonstrated a functional relationship between a teacher's use of a function-based behavior support strategy (e.g., behavior-specific praise) and performance feedback by a consultant. Results demonstrated that the teacher did not increase her use of the function-based behavior support strategy until the teacher received ongoing feedback from the consultant. Thus, the amount of time spent in training and practice, as well as the quality of training, appears to be important factors in determining whether a new skill will be utilized by adults in a school setting.

Taken together, these studies provide evidence that increased amounts and effectiveness of training may be related to a higher level of competency in function-based behavior support planning. Higher competencies, in turn, may lead to the development of more technically adequate BSPs. Thus, these aspects of training may be important contributions to school personnel's function-based behavior support planning competencies.

***Impact of highest degree earned.*** There is a considerable difference in the amount of time allocated to training, types of training experience, and content provided to school psychology students across training programs (Merrell et al., 2006). Clearly, there are also considerable differences in training requirements in terms of time and content across master's, specialist, and doctoral degree school psychology programs (Merrell et al., 2006). Thus, it is reasonable to infer that these differences may result in varying degrees of competency in the area of function-based behavior support planning.

To date, no studies have directly examined the relationship between the highest degree earned and the function-based behavior support planning competencies of school psychologists. However, one study examined the relationship between highest degree

earned and consultation competencies of school psychologists (Costenbader & Swartz, 1992). Results indicated that the type of terminal degree school psychologists possess (master's, specialist, or doctorate) was related to the amount and self-reported effectiveness of pre-service training in consultation. Specifically, doctoral-level school psychologists reported receiving more formal training in consultation and judged the effectiveness of their training as stronger. Doctoral-level practicing school psychologists also rated themselves as significantly more able to deliver high quality consultation services than both masters and specialist level practicing school psychologists. Master's and specialist level practitioners did not differ on these variables.

Given the limited research base for examining the relationship between degree earned and function-based skill competencies and school psychologists, a review of the literature examining the relationship between highest degree earned with teachers and the impact of degree type on student academic achievement outcomes was conducted. Although findings from this body of research with teachers cannot be directly extended to school psychologists nor to function-based behavior support planning competencies, a brief review reveals important considerations.

Only a small body of research has been conducted on the impact of teachers' highest degree earned on student academic achievement and the evidence provided mixed, inconclusive, and surprising results. One study provided evidence of a positive effect of teacher degree on elementary student achievement, with teachers holding higher degrees producing better student outcomes (Ferguson & Ladd, 1996). However, other studies have found no discernible effect (Murnane & Phillips, 1981), or even an apparent negative effect of teachers holding master's degrees (as compared to bachelor's degrees)

on elementary student achievement (Eberts & Stone, 1984; Kiesling, 1984; Murnane, 1975; Rowan, Correnti, & Miller, 2002). Research conducted with secondary level teachers also demonstrates inconclusive results (Croninger, King Rice, Rathbun, & Nishio, 2007). Studies using longitudinal datasets of teacher characteristics and student academic achievement outcomes have documented that advanced degrees are most advantageous for improving student outcomes in the specific content area of the degree (Croninger et al., 2007; Rowan et al., 1997). For example, the analysis by Rowan et al. (1997) did not distinguish between the level of the degree earned, but receiving additional training in the specific content area (e.g., majoring in mathematics in undergraduate and/or graduate school) was a positive predictor of student achievement. These findings from research with teacher participants indicate that the effect of highest degree earned may have more to do with the content and quality of training rather than the completion of a specific degree type. However, research is needed in order to draw this conclusion for school psychologists regarding their competencies in function-based behavior support planning.

In sum, it appears that the amount and self-reported effectiveness of training and type of highest degree earned may affect the competencies in function-based support planning school psychologists possess and are thus important variables to consider. However, no studies have investigated school psychologist's prior training in function-based behavior support planning. The above body of research is limited by the focus on FBA practice and consultation skills of school psychologists and on the effects of prior training of teachers, rather than the relationship of training factors on function-based behavior support planning competencies. Thus, research is needed that examines the

relationship between the amount and effectiveness of training and highest degree earned on the function-based behavior support planning competencies of school psychologists.

### **Evidence for Direct Effects of Training on School Personnel Competencies**

A growing body of research indicates that the current skill level and training school personnel possess in the development BSPs is insufficient (Blood & Neel, 2007; Van Acker et al., 2005). In response, a small body of research has investigated how training impacts the technical adequacy and quality of FBAs and behavior support plans.

Scott et al. (2005) sought to investigate whether there were differences between experts and school-based teams in the selection of intervention strategies based on FBA data. Certified staff members were provided with six hours of training to act as facilitators of school-based intervention teams. Results indicated that school-based teams tended toward more reactive and negative interventions than did experts (such as giving the student a detention), regardless of the identified function of the behavior. School-based teams also included exclusionary strategies (such as expulsion) in 70% of cases, while no experts advocated for exclusionary practices. This study suggests that despite an intensive 1-day training, teams of school professionals struggled to develop valid function-based interventions.

Although the results of the above study are concerning, several other studies have documented increases in behavior support planning competencies following brief training. In a study by Strickland-Cohen and Horner (2015), thirteen school professionals participated in four 1-hour “From Basic FBA to BSP” training sessions. Overall, the average percent change for participants from pre- to post-training assessments was an increase of 26 percent. In addition, only one of the participants displayed adequate BSP

knowledge (i.e., a score of at least 80% on the pretest assessment) prior to the training. However, after training, all of the team leaders scored at least 80% on the posttest assessment. Therefore, these results indicate that the 4-hour training series elicited a change in knowledge related to behavior support planning for participating team leaders. However, these findings should be interpreted with caution, as the study was not experimental (i.e., no control group) and therefore causality cannot be determined.

In another study, Browning-Wright et al. (2007) evaluated the effects of trainings designed to increase the competencies of professionals to develop high quality positive behavior support plans. Results of the professional trainings revealed that participants were nearly four times more likely to develop BSP plans that were rated as ‘good’ or ‘superior’ after receiving training on how to evaluate and rate the quality of BSP plans than receiving training on the six key concepts alone. These findings indicate that school personnel may need training to gain skills and competencies specifically tied to the development of BSPs and that an understanding of the general principles underlying behavior change may not automatically generalize to BSP development.

In sum, nearly all of the extant research provides evidence for an extensive research to practice gap regarding the BSP competencies of school personnel. Research indicates that many individuals involved in the behavior support planning process may have had an inadequate amount or ineffective training and lack the prerequisite skills needed to develop effective function-based BSPs. This appears to hold true even when these same individuals work in a team with individuals who routinely lead BSP development teams. Preliminary evidence suggests that brief training can be an effective means to remediate these missing competencies and result in higher quality BSPs. However, although it

appears that the gateway to enhancing behavioral competencies of school personnel may be additional training, school systems have limited resources for staff development. Thus, schools must use their training resources selectively and target the most needed areas for skill development. Gaining a better understanding of school personnel's current competencies would allow for such a targeted professional development advisory.

### **Limitations of Previous Research**

A review of the literature on the current practices and skills school personnel possess in identifying behavior support strategies reveal several gaps in the literature. First, the current body of literature focuses primarily on school personnel other than schools psychologists, thus it cannot be determined if similar results hold true for school psychologists. In addition, the very limited body of research that assess behavior support planning competencies of other school personnel are largely based on self-reports by the respondents, rather than on verifiable sources of data. This is problematic because school personnel may have misunderstood the questions, reported their practice inaccurately, or simply reported in a socially desirable manner.

Another limitation is that previous studies have either been over or under controlled. Some studies are problematic because although they controlled the information provided to participants (by providing vignettes) to test participants' skills, these skills were assessed by examining confidence ratings and self-report. Only one study has directly assessed school personnel's function-based behavior support planning competencies. Evidence largely stems primarily from one study that was conducted with other school specialists with a small sample size containing participants (only three of whom were school psychologists) from one constrained geographical area. Research



studies conducted with large representative samples of school psychologists are needed in order to make statements about the current training and competencies school psychologists possess.

In order to facilitate desired changes in the practice of school psychology, it is important to understand the relationship between function-based behavior support planning competencies and variables such as highest degree earned and the amount and effectiveness of pre-service and post-graduate training. To date, no studies have been conducted to examine this relationship with a large representative sample of school psychologists. The current study is the first to directly assess one key prerequisite skill involved in behavior support planning, the ability to identify intervention components that are aligned with the hypothesized function of behavior, with a representative sample of practicing school psychologists.

### **Study Purpose and Research Questions**

In sum, schools are in need of strategies that are effective, efficient, and valued for promoting academic and social behavioral success for all students. To this end, function-based behavior supports have been strongly supported in the literature for reducing problem behavior and for improving academic performance. A small, but concerning body of literature has also shown evidence that behavior support practices in schools are neither technically sound nor implemented with integrity. In comparison, relatively little is known about current competencies and training of practicing school psychologists in function-based behavior support planning.

The current study contributed to and extended the literature base by assessing the function-based behavior support planning competencies of practicing school

psychologists. In addition, predictors of group differences on school psychologists' function-based behavior support planning competencies were examined. Finally, descriptive information about the sample was examined (e.g., training and supports that are offered to practicing school psychologists). Specifically, the study examined the following research questions:

1. Using scores derived from the Modified BSP Knowledge Test, what current competencies in function-based behavior support planning do practicing school psychologists possess?

Based on previous studies (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002; Strickland-Cohen, 2011), it was hypothesized that less than half of school psychologists would meet the competency criteria of 80% correct (total raw score of 32) on the Modified BSP Knowledge Test.

2. Do function-based behavior support planning competencies differ for practicing school psychologists depending on their highest level of education: master's, specialist, and doctoral levels?

It was hypothesized that individuals who received their terminal school psychology degree at the doctorate level would have higher function-based behavior support plan competencies than individuals with a terminal master's or specialist degree as indicated by higher scores on the Modified BSP Knowledge Test (Costenbader & Swartz, 1992; Croninger et al., 2007; Eberts & Stone, 1984; Ferguson & Ladd, 1996; Kiesling, 1984; Murnane, 1975; Murnane & Phillips, 1981; Rowan et al., 2002).

3(a). To what degree does the amount of post-graduate training in function-based behavior support planning predict function-based behavior support planning competencies?

It was hypothesized that individuals with more training in function-based behavior support planning, as indicated by the number of post-graduate training hours obtained within the last two years, would have higher competencies in function-based behavior support planning as indicated by higher scores on the Modified BSP Knowledge Test (Costenbader & Swartz, 1992; Harnett & Dadds, 2004; Hsiao & Albin, 2000; Mitachi, 2002; Van Acker et al., 2005).

3(b). To what degree does school psychologists' self-reported post-graduate training effectiveness in function-based behavior support planning predict function-based behavior support planning competencies?

It was hypothesized that individuals with higher self-reported post-graduate training effectiveness would have higher competencies in function-based behavior support planning as indicated by higher scores on the Modified BSP Knowledge Test (Costenbader & Swartz, 1992; Harnett & Dadds, 2004; Hsiao & Albin, 2000; Mitachi, 2002; Sawka, et al., 2002; Shapiro et al., 1999).

3(c) To what degree does school psychologists' amount and self-reported effectiveness of their post-graduate training in function-based behavior support planning predict their function-based behavior support planning competencies?

It was hypothesized that individuals with more training in function-based behavior support planning, as indicated by the number of post-graduate training hours obtained within the last two years, and higher self-reported post-graduate training effectiveness,

would have higher competencies in function-based behavior support planning as indicated by higher scores on the Modified BSP Knowledge Test (Costenbader & Swartz, 1992; Harnett & Dadds, 2004; Hsiao & Albin, 2000; Mitachi, 2002; Sawka et al., 2002; Shapiro et al., 1999).

## CHAPTER II

### METHOD

#### **Design**

The current study examined competencies and predictors of function-based behavior support strategies with a correlational design (Rovai, Baker, & Ponton, 2013). First, school psychologists' function-based behavior support planning competencies are described, as indicated by raw scores on the Modified Behavior Support Plan Knowledge Test (described below). Differences on Modified BSP Knowledge Test scores between participants based on highest degree earned were then tested. Finally, relations among variables were investigated by examining the predictive power of the amount and perceived effectiveness of post-graduate training in behavior support planning on function-based behavior support planning competencies, as indicated by participants' raw scores on the Modified BSP Knowledge Test. A separate section providing details for data aggregation and analysis are included below.

#### **Sample**

Participants in the study were selected by obtaining a random stratified sample of 1,000 members of the National Association of School Psychologists (NASP). The principal investigator requested that the sample be drawn from members of NASP meeting all of the following parameters: (a) individuals currently serving children in elementary, middle, and/or high school settings, (b) highest obtained degree of masters, specialist, or doctorate, (c) employed in a public school setting, and (d) having a role of a school psychologist. The sample was stratified for approximately equal numbers of individuals with masters, specialist, and doctorate degrees and contained individuals from

all regions of the United States. Demographic items regarding these characteristics on the survey were used to verify meeting of inclusion criteria. An estimate using the above search criteria was computed on May 12, 2013 by InFocus Marketing, Inc. and revealed that approximately 7,604 NASP members (out of an estimated 16,253 total members, or 46.8%) meet these criteria.

### **Return Rate**

Individuals were invited to participate in the current study with a series of three recruitment post-card mailers (described in further detail in the procedures section below). One hundred twenty four individuals, or 12.4% of the 1,000 individuals randomly selected from the NASP membership database included in the mailing responded. Of the 124 preliminary respondents, 9 were dropped from inclusion in the study due to logistical and/or consent issues. Specifically, four had incorrect addresses, four individuals contacted the principal investigator via e-mail or phone and declined to participate, and one individual did not indicate consent on the Qualtrics survey. Thus, the initial number of potentially useable survey responses was 115.

A total of 105 participant survey responses met the established sample criteria as indicated by relevant items on the survey instrument. This excluded 10 cases due to current job role and time equivalent status. Specifically, six survey respondents did not indicate that they were currently practicing as a school psychologist and four did not indicate working as a school psychologist on a full-time basis. This resulted in an ultimate inclusion rate of 91.3%. Thus, the results of this study were based on the 105 usable surveys completed by currently practicing full time school psychologists serving

elementary, middle and secondary grade levels, which resulted in an ultimate response rate of 10.5%.

### **Demographic Summary**

Responses to items on the survey were used to describe the characteristics of the individuals who participated in the study. All demographic characteristics were descriptive of those respondents who identified themselves as a full-time school psychologist currently employed by the public school system ( $N = 105$ ). Details for each of the following demographic characteristics are provided in Tables 1-3. All tables are provided in Appendix A.

Table 1 presents the demographic characteristics of the participants along with comparisons to data from the 2009 and 2010 NASP National Membership Study (Castillo, Curtis, Chappel, and Cunningham, 2011), where available. Statistical comparison of the demographic data in Castillo et al. (2011) to the demographic information in the current study was not possible because standard deviations were not reported in the data summary. However, a qualitative comparison was made to determine if the sample of respondents in the current study is representative of the NASP membership sample.

**Sex and race/ethnicity.** Participants were predominately female 86% and 12% were male. Male participants in this study were underrepresented as compared to the NASP membership study, in which 23% were male. The majority of respondents were Caucasian (91%). Other self-identified race/ethnicity categories included Hispanic (2%), African American (3%), Asian/Pacific Islander (3%).

**Highest degree earned.** Twenty-nine percent of respondents reported that their highest educational degree obtained was a master's degree, 44% reported receiving specialist's degrees, and 28% reported receiving doctoral degrees. This distribution is reflective of the 2010 NASP membership study, despite stratifying the original sample for equal proportions of individuals with master's, specialist, and doctorate degrees.

**Primary employment and employment setting.** All participants indicated current primary employment as full-time practicing school psychologists in public school settings, as compared to 81% (practicing school psychologist) and 84% (public schools) of the NASP 2010 sample. This was an intentional divergence from NASP membership representation, due to these demographic information criteria serving as inclusionary criteria for the current study.

**Years employed as a school psychologist.** The years employed as a school psychologist reported by participants ranged from 1-40 years, with a mean of 11.58 years ( $SD = 9.6$ ). The sample was somewhat skewed toward early career psychologists (10 or fewer years of experience).

**Grade levels served.** All respondents reported providing psychological services at multiple grade levels. Seventy one percent worked with students within grades K-5, 60% worked with junior high/middle school students (as defined by grades 6-8), and 48% worked with students in high school (as defined by grades 9-12). Comparative data from NASP was not available.

**Socioeconomic status of students served.** Respondents indicated the approximate percentage of students with whom they work who qualify for free or reduced price lunch (as a proxy for socioeconomically disadvantaged status). Thirty-



eight percent of respondents indicated that they did not know this information and the remaining 62% of participants provided an estimate. The most frequent response was between 31-40% of socioeconomically disadvantaged students. Comparative data from NASP was not available.

**Region of the country.** Table 2 presents information on the region of the country where participants were employed. Respondents were employed across all regions of the United States, and represented 33 states, with a range of 1-9 survey respondents per state. The two regions with the largest number of respondents represented in the sample were the Mid-Atlantic ( $n = 24$ , 23%) and the Great Lakes region ( $n = 25$ , 24%). These findings closely approximate the regional sample in a study conducted by Nusz (2008).

**Graduate training characteristics.** Eighty seven percent of respondents provided additional information on their graduate training in school psychology and this information is provided in Table 3. In general, 74% attended a public university or college and the majority (93%) of participants graduated from a program-approved or an accredited program. The most common training models indicated by participants included scientist-practitioner (35%), practitioner (20%), and practitioner-scientist (12%). Another 18% indicated they did not know the model of their training program. The most common theoretical orientation of participants' graduate training was Behavioral (31%), followed by Eclectic (11%) and Developmental (10%).

Overall, the sample of the current study appears to closely resemble that of the NASP population with regards to race/ethnicity, years employed as school psychologist and highest degree earned (Castillo et al., 2011; Curtis et al., 2008). A comparison of additional demographic information including region of country and socioeconomic

status of students served are comparable to a national survey of school psychologists drawn from NASP membership (Nusz, 2008). These data, in conjunction with the nation-wide random sampling used in this study, lends support for the generalization of these results to the larger population of practicing school psychologists across the country.

### **Instrumentation**

The instrument used in this study consists of three sections and is included in its entirety in Appendix B. Part I includes items developed by the researcher based on items assessed in published material (Browning-Wright et al., 2007; Castillo et al., 2010; Nusz, 2008) to assess training in school psychology and function-based behavior support planning. Part II is a modified version of the Behavior Support Plan Knowledge Test developed by Strickland-Cohen & Horner (2011). The version used in the current study will hereafter be referred to as the Modified Behavior Support Plan Test (or Modified BSP Knowledge Test). Part III includes items that assess participant demographic characteristics based on demographic items used in similar published work (Nusz, 2008; Sue & Ritter, 2012; Castillo et al., 2010). The three parts of the instrument are described in detail in the sections that follow.

**Part I.** Part I of the survey contains items related to participants' employment and information about participants' pre-service and post-graduate training experiences with function-based behavior support planning. Specifically, participants indicate how adequately prepared they felt at the time of graduation and how adequately prepared they currently feel for conducting FBAs, interpreting FBA results, identifying function-based intervention strategies, and developing function-based behavior support plans.

**Part II: Function-based behavior support planning competency.** A modified version of the Behavior Support Plan Knowledge Test (Strickland-Cohen & Horner, 2011) was used to assess participants' competency in identifying function-based behavior support strategies. Three open-ended items from the BSP Knowledge Test (e.g., "What are the four critical components of Behavior Support Plans?") were omitted because they were not related to this study's research questions. The remaining items constituted the 'Modified BSP Knowledge Test' used in the current study.

**Modified BSP Knowledge Test.** The Modified BSP Knowledge Test includes five vignettes that describe a hypothetical student exhibiting problem behavior. Each vignette contains information on the student's gender, grade, problem behavior, antecedents to the problem behavior, and what typically occurs following problem behavior. Each vignette concludes with a hypothesized statement about the function of the problem behavior. Two vignettes indicate that the student has an identified disability and two vignettes indicate that there is a setting event/establishing operation present.

A series of eight items follows each of the five vignettes (i.e., 40 items in total are included in the Modified BSP Knowledge Test). Each item describes a potential intervention component for the student and asks participants to identify whether the component (e.g., provide frequent descriptive adult praise for appropriate hallway behavior) is function-based, neutral, or contraindicated for the student. Each component is defined for participants on the Modified BSP Knowledge Test. A *function-based* intervention is defined as an intervention that directly addresses the function of the problem behavior and is expected to improve behavior. A *neutral* intervention is defined as an intervention that might be effective or is a good behavior management practice, but

is unrelated to the function of the problem behavior. A *contraindicated* intervention is defined as an intervention that conflicts with the function of the problem behavior (i.e., provides access to maintaining consequence(s) following problem behavior) and may increase problem behavior.

The total raw scores range from 0-40 and the possible range of percentage of items answered correctly range from 0-100%. The total raw score is divided into three subscores: (a) function-based, (b) neutral, and (c) contraindicated. The function-based subscore comprises the number of correctly identified strategies as ‘function-based’ and possible scores range from 0-16. The neutral subscore comprises the number of correctly identified strategies as ‘neutral’ and possible scores range from 0-14. The contraindicated subscore comprises the number of correctly identified strategies as ‘contraindicated’ and possible scores range from 0-10.

***Development and validation of the BSP Knowledge Test.*** The BSP Knowledge Test was developed by Strickland-Cohen and Horner (2015) and adapted from the BSP Knowledge Assessment (Benazzi, Nakayama, Sterling, Kidd, & Albin, 2003). The content of the BSP Knowledge Assessment (Benazzi, Nakayama, Sterling, Kidd, & Albin, 2003) was designed to evaluate school personnel knowledge of critical BSP components and their ability to discriminate between interventions that are function-based, neutral, or contraindicated. Strickland-Cohen and Horner (2015) adapted the instrument by adding (a) three additional vignettes, (b) information on the function of the problem behavior and (c) setting events / establishing operations information for two of the vignettes. Benazzi and colleagues (2003) asked participants to provide ratings on a Likert-type scale (1 = *not very confident* - 6 = *very confident*) about their confidence in

each component. Strickland-Cohen and Horner (2015) replaced the Likert-type rating with a multiple choice format in which respondents select if the intervention component is function-based, neutral, or contraindicated. To develop additional vignettes and intervention strategies, Strickland-Cohen and Horner (2015) conducted a literature review to determine common referral issues within primary school settings. A literature review also helped determine items to assess participant ability to identify strategies that were indicated for the hypothesized function (Strickland-Cohen & Horner, 2015).

Finally, an expert panel was used to verify the appropriateness of the BSP Knowledge Test (Strickland-Cohen & Horner, 2015). The expert panel included four PhD level behavior analysts and seven PhD students in school psychology or special education. All experts had scores at 90% correct or above. A general education teacher also reviewed the instrument for content validity and clarity of items. In addition, the expert panel convened as a group to provide written and verbal feedback regarding the item language, operational definitions, clarity and content of vignettes, and ease of use. Feedback was integrated into a following iteration of the BSP Knowledge Test. Specifically, changes were made to the wording of several items but no changes were made to the vignettes. Next, the instrument was field-tested with school professionals, including school psychologists, teachers, behavior specialists, administrators, and educational assistants. Field test participants provided verbal feedback regarding the item language, operational definitions, clarity and content of vignettes, and ease of use. Feedback from the field test was used to modify the language of one operational definition and several items.

**Part III.** Part III of the survey instrument contains items related to participant demographic characteristics. For example, all participants were administered items that ask about their gender and race/ethnicity. Participants who indicate that they work in school settings were also asked to provide additional information on the characteristics of the school settings in which they work, including the grade range of students served, percentage of students qualifying for free or reduced lunch, how many years they have worked as a school psychologist, and the year they earned their highest terminal degree in school psychology.

### **Online Survey Instrument Design**

The final survey instrument (i.e., parts I, II, and III) was transferred into Qualtrics, an internet-based survey design program. The survey instrument was constructed in accordance with recommended survey design practices (Babbie, 1990; Fowler, 2003; Sue & Ritter, 2012). These recommendations included structural features of the instrument and design of items. For example, a brief introduction before the questions begin was provided, and common response formats across items, with minimal variation across questions were used. According to best practices in survey design, demographic items were included at the end of the survey instrument to reduce participant fatigue and increase survey completion rates (Sue & Ritter, 2012). In addition, as the survey is internet-based, items and response choices were presented on the same area of the screen to minimize the need to scroll down to answer, thereby reducing the need for extensive mouse navigation (Sue & Ritter, 2012).

Use of the Qualtrics survey design program allowed for several beneficial features to be programmed. Skip logic was used and allowed participants to only see items

displayed that are relevant to their answer choices. For example, if a participant indicated s/he works in a school setting, follow-up questions regarding the characteristics of the school were asked. Participants who indicated that they do not work in school settings did not have follow-up questions presented. Skip logic was programmed into the online survey instrument in order to minimize inconsistent or contradicted data and maximize the reliability of the data collected (Fowler, 2009; Sue & Ritter, 2012). For example, utilizing skip logic prevents situations such as a participant indicating s/he has not received any training in function-based behavior support, but answering follow-up items describing the type of training received.

The online survey instrument was housed on a password-protected web address, thus increasing the security of the survey (Sue & Ritter, 2012). In addition, the ‘prevent ballot stuffing’ feature was used, which minimizes the risk that participants complete the survey multiple times (Sue & Ritter, 2012). Participant identity was protected by programming the survey instrument to delete all digital identifiers including IP addresses and internet cookies. Participants were provided an opportunity to share identifying information in the form of name and mailing address from a separate website via a link provided upon completion of the survey instrument. Participants were asked to provide their names and addresses only if they would like to be included in the incentive drawing. In this manner, there was no connection of participant identities to their survey data.

## **Variables**

**Function-based behavior support planning competency.** Function-based behavior support planning competency was assessed using the Modified BSP Knowledge Test (i.e., Part II of the survey instrument). It is a ratio variable expressed as a raw score

ranging from 0-40. Descriptive information on this variable will be presented addressing research question 1. Function-based behavior support planning competency also served as the dependent variable for research question 2 and the criterion variable for research question 3 (parts a, b, and c).

**Highest degree obtained.** Highest degree obtained is a self-reported nominal level variable with three levels: master's degree, specialist degree, and doctoral degree. These levels were determined by collapsing participant answers to the item "what is your highest degree earned?" in Part I of the survey instrument. The master's degree group included participants who indicated their highest degree earned is a MA or MS degree. The specialist's degree group included participants who indicated their highest degree earned is an EdS degree. The doctoral degree group included participants who indicated their highest degree earned is a PhD, EdD, DEd or PsyD. Highest degree obtained served as the independent variable for research question 2.

**Amount of post-graduate training.** Amount of post-graduate training in behavior support planning is a self-reported continuous level variable and is expressed by number of hours. Participants indicated how many hours of post-graduate training they received in function-based behavior support planning in the last two consecutive years. Amount of post-graduate training served as the predictor variable for research question 3 (a) and one of the interaction terms in research question 3 (c).

**Self-reported effectiveness of post-graduate training.** Self-reported effectiveness of post-graduate training in function-based behavior support planning is an interval level variable. Participants indicated how effective they feel their most recent two years of post-graduate training was in function-based behavior support planning.



Participants rated their response on a scale of 0-100 percent effective. Self-reported effectiveness of post-graduate training served as the predictor variable in research question 3 (b) and one of the interaction terms in research question 3 (c).

## **Procedures**

**Survey instrument validation.** A panel of experts in applied behavior analysis and research methodology (i.e., dissertation committee members) thoroughly reviewed and provided feedback on the survey instrument and study procedures. The expert panel provided verbal and written feedback and the first author then worked with the dissertation chair to use this feedback to make appropriate modifications. In addition, the first author recruited a small number of current advanced graduate students enrolled in the school psychology program at the University of Oregon to serve as survey instrument reviewers. These reviewers were invited to complete the final survey online and provide feedback on the ease of use and note any faulty programming or technical difficulties. Feedback provided by these reviewers noted only editorial and typographical errors.

**Recruitment.** A research application to NASP for “Access to the NASP database” was completed after University of Oregon Institutional Review Board (IRB) approval was granted. The application included a summary of the proposed study, the survey instrument, recruitment materials, documentation of the University of Oregon’s IRB approval, and a support letter from the advisor of the first author (i.e., the dissertation chair). Access to a random sample of 1,000 mailing labels of NASP members likely to meet inclusion criteria (specified above) was then provided by NASP through InFocus Marketing, Inc. for a nominal fee.

**Distribution of Survey.** The mailing list provided by NASP was visually inspected and screened for errors by the first author prior to mailing. For example, the list was screened for duplicates and incomplete or obviously erroneous mailing addresses.

**Data collection.** Data were collected using the procedures described above. Per recommendations by Sue and Ritter (2012), the dates for each mailing were scheduled by considering the work schedules of school professionals. Specifically, the complete data collection cycle was set to occur between major holidays observed in the public school system (following spring break until the end of the school year). In addition, research suggests that the timing of the mailings is important, thus effort was made to ensure that the majority of mailings would be delivered on a Tuesday or Wednesday, as this has been indicated in the literature to be the optimal weekdays to launch surveys with participants who are professionals (Sue & Ritter, 2012).

**Pre-notification mailing.** Following UO IRB and NASP approval, a pre-invitation mailing was sent to the sample via postal mail in early May 2014. Each potential participant was sent a postcard detailing the purpose of the study, emphasizing its importance and the value of each respondent's participation, listing researcher contact information, and informing potential respondents when to expect the survey invitation. Alerting recipients to the survey helps prime them for its arrival and aids in establishing the legitimacy of the project (Sue & Ritter, 2012). Pre-notification mailings have also been shown to increase response rates (Babbie, 1990; Fowler, 2009; Sue & Ritter, 2012). Recruitment materials for all three mailings are provided in Appendix C.

**Invitation mailing.** One week later, a second mailing occurred with a postcard detailing the purpose of the study, incentive procedures, potential risks and benefits to

participants and an invitation to participate in the study with a web address and password to the internet-based Qualtrics survey. Individuals who were interested in participating in the study visited the web address and entered the provided password to complete the survey. The survey was password protected to help minimize the chance that individuals not invited to participate would complete the survey (Sue & Ritter, 2012). Once entered into the Qualtrics survey, participants were presented with an informed consent document. Participants indicated consent by checking a box with a statement of agreement. A copy of the informed consent document is provided in Appendix D.

***Follow-up mailing.*** Sending follow-up invitations has been indicated in the literature as best practice to increase response rates (Babbie, 1990; Fowler, 2009; Sue & Ritter, 2012). The follow-up mailing was sent out approximately one week after the invitation mailing, as this is optimal for increasing response rates (Sue & Ritter, 2012). Potential participants were sent a postcard with the same information used for the invitation mailing and a statement thanking participants who have completed the survey and reminding those who have not participated to do so. Surveys completed in Qualtrics by June 30, 2014 were included in the data analysis. A timeline outlining major data collection tasks is provided in Appendix E.

***Incentive drawing.*** To acknowledge participants' time completing the survey, an incentive drawing was provided as an option. After participants completed the online survey, they were directed to a separate survey link where they were able to provide their mailing information if they opted to participate in the incentive drawing. Upon closing of the online survey instrument, a random drawing of four participants (who chose to provide their information strictly for this purpose) was conducted. Four participants were

sent a \$25 gift card to a popular, national business (e.g., Starbucks).

### **Data Analysis**

**Data aggregation.** Data were automatically collected via the online survey and aggregated in a data file hosted by the Qualtrics website. The data file was password protected and access restricted to the first author and dissertation chair. Once the survey was closed on June 30, 2014, the data were imported into IBM SPSS Statistics 21.0.

**Data screening.** Prior to conducting analyses, data were screened for potential importation errors and cleaned per recommendations of Kupzyk (2008). First, the file was visually cross-referenced with the survey instrument to ensure that it was complete. Each field was checked to make sure that only legal codes occurred (e.g., no negative numbers). Finally, a set of overall distribution checks were run and examined for errors or outliers (Kupzyk, 2008).

**Treatment of missing data.** Based on the amount of missing data, an appropriate approach was selected to handle the analysis (e.g., an all available data approach, listwise deletion; per recommendations of Shafer & Graham, 2002). To determine which approach was appropriate, Little's MCAR test ('missing completely at random' test) was conducted with each variable with missing data (Hill, 1997). When this assumption was met (by examining the chi-square statistic for statistical significance; i.e., no identifiable pattern), Estimation Maximization (EM) was used to impute missing data. This method provides consistent and unbiased estimates of correlations and covariances when used with data missing completely at random (Hill, 1997, p. 42). When this assumption was not met, listwise deletion was used.

**Evaluation of inferential statistical test assumptions.** Prior to conducting the data analysis procedures for research questions 2 and 3 (a, b, and c) described below, common assumptions of inferential statistical tests and descriptive statistics were conducted for all study variables. Common assumptions tested for the analysis of variance (ANOVA) included normality and homoscedasticity. Common assumptions tested for the multiple regression analysis included: normality, linearity, independence of observations, homoscedasticity, and the absence of excessive multicollinearity (Rovai, Baker, & Ponton, 2013).

**Research Question 1.** Using scores derived from the Modified BSP Knowledge Test, what current competencies in function-based behavior support planning do practicing school psychologists currently possess? This research question is exploratory and descriptive in nature, thus no statistical test was used. Descriptive statistics (mean, frequencies, range, and standard deviation) were run on the total raw score (0-40), function-based score (0-16), contra-indicated score (0-10), and neutral score (0-14) on the Modified BSP Knowledge Test and disaggregated by degree program.

**Research Question 2.** Do function-based behavior support planning competencies differ for practicing school psychologists at the master's, specialist, and doctoral levels? The variables included to answer research question 2 included highest degree earned and total raw score on the Modified BSP Knowledge Test. Highest degree earned is a nominal variable and served as the independent variable with three levels: (a) master's, (b) specialist, and (c) doctorate degree. Total score on the Modified BSP Knowledge Test is a ratio variable and served as the dependent variable. Following the testing of common assumptions, a one-way, between subjects ANOVA was conducted to test the

hypothesis that participants with a doctoral degree will have statistically higher scores on the Modified BSP Knowledge Test than participants with a master's or specialist degree.

**Research Question 3.** Following the testing of common assumptions for regression, the following research questions were analyzed by entering amount of training, training effectiveness, and Modified BSP Test total score within one hierarchical multiple regression model:

3(a) To what degree does the amount of post-graduate training in function-based behavior support planning predict function-based behavior support planning competencies?

3(b) To what degree does school psychologists' self-reported effectiveness of their post graduate training in function-based behavior support planning predict their function based behavior support planning competencies?

3(c) What is the interaction of the amount of postgraduate training\* self-reported effectiveness of post-graduate training in function-based behavior support planning of function based behavior support planning competencies?

A hierarchical multiple regression analysis was used to answer research questions 3 (a), (b) and (c). The total raw score on the Modified BSP Knowledge Test served as the criterion variable. The amount of post-graduate training and self-reported effectiveness of post-graduate training served as predictor variables. Finally, the influence of years of experience was controlled for.

The analysis was performed to determine the amount of unique variance in function-based behavior support planning competency associated with the amount of post-graduate training and self-reported effectiveness of post-graduate training in

function-based behavior support planning. Specifically, main effects of amount of post-graduate training and self-reported effectiveness of post-graduate training on the total raw score on the Modified BSP Knowledge Test and the interaction between the amount of training (in hours) by effectiveness of training on function-based behavior support planning competencies were examined. First, years employed as a school psychologist was entered in the model and controlled for. Next, amount of training and effectiveness of training were entered into the model simultaneously. Last, the interaction of amount and self-reported effectiveness of training was entered.

**Post-hoc power analysis.** Post-hoc power analyses using G\*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009) were conducted for the data analyses for research questions 2 and 3.

## CHAPTER III

### RESULTS

This chapter presents the results of the data analysis procedures that were presented in Chapter II. The chapter has been divided into three sections. The first section outlines the diagnostic actions taken to ensure the integrity and appropriateness of the data, including data screening and examination of missing data patterns and treatment. The second section addresses the specific results of each research question, all of which pertain to school psychologists' current practices in positive function-based behavior support planning competency. The third section presents the post-hoc power analyses. All tables are provided in Appendix A.

#### **Data Analysis**

**Data screening.** Prior to conducting analyses, data were screened for potential importation errors. First, the file was visually cross-referenced with the survey instrument to ensure that it was complete. Each field was checked to make sure that only legal codes occur (e.g., no negative numbers). Next, a set of overall distribution checks were run and examined for errors or outliers. No importation errors were noted. Next, the data were tested for influential cases by running descriptive statistics and examining boxplots for each variable. No extreme outliers were found.

**Treatment of missing data.** Within the total number of participants in the study that met inclusion criteria ( $N = 105$ ), there were 80 cases that had at least one independent variable item missing or did not meet criteria to provide data on a variable (for example, when an item was not provided due to a prior response via skip logic in the survey). Thus, utilizing a listwise method of data analysis would have resulted in using



only the remaining 25 complete cases, reducing the sample size 76%. Therefore, to utilize as much data as appropriate, statistical analyses were used to determine an appropriate treatment for missing data (Schafer & Graham, 2002). To provide guidance on an appropriate missing data treatment, Little's MCAR test was conducted to examine if data were missing completely at random (Osborne, 2012). The chi-square statistic for testing whether values are MCAR is referred to as 'Little's MCAR test.'

***Modified BSP Knowledge Test total score.*** Five out of the 105 participants had missing data on the Modified BSP Test. The amount of missing data represented 0.57% of all possible points on the Modified BSP Test in the sample, with a range of missing data per participant of 3-40%. Of the .57% of total missing data, 83% of missing data were due to participants indicating "I prefer to not answer this question" and 16.7% of missing data were unanswered. Table 4 displays a detailed description of item completion by cases with missing items on the Modified BSP Knowledge Test.

The Little's MCAR test obtained for this variable resulted in a chi-square = 10.295 ( $df = 2; p < .05$ ), which indicates that the assumption that data are missing completely at random was supported (i.e., no identifiable pattern exists to the missing data). Next, utilizing the SPSS program Missing Value Analysis, missing data were imputed using an expectation maximization (EM) technique.

## **Results by Research Question**

**Research Question 1.** Using scores derived from the Modified BSP Knowledge Test, what current competencies in function-based behavior support planning do practicing school psychologists currently possess? To answer this research question, descriptive statistics were run on the total raw score (0-40), function-based score (0-16),

neutral score (0-14), and contra-indicated score (0-10) on the Modified BSP Knowledge Test and disaggregated by highest degree earned. Authors of the Modified BSP Knowledge Test set the criterion for meeting proficiency at 80% correct or higher (score of 32 or above) for the total score (Strickland-Cohen & Horner, 2015).

The observed total score on the Modified BSP Knowledge Test ranged from 19-38, with a mean of 28.80 ( $SD = 4.6$ ). The mean total score is equal to a score of 72% correct on the Modified BSP Knowledge Test. The function-based (FB) subscore (0-16 possible) ranged from 4-15 points, with mean of 11.30 ( $SD = 2.35$ ). The mean score is equal to a score of 71% correct on the function-based subscale. The neutral (N) subscore (0-14 possible) ranged from 2-14, with a mean of 9.70 ( $SD = 2.97$ ). The mean score is equal to 69% correct on the neutral subscale. The contraindicated (C) subscore (0-10 possible) ranged from 1-10, with a mean of 7.79 ( $SD = 2.05$ ). The mean score is equal to a score of 78% correct on the contraindicated subscale. Descriptive statistics for total score and subscores on the Modified BSP Knowledge Test are provided in Table 5.

Next, descriptive statistics were run on the Modified BSP Knowledge Test total score and disaggregated by highest degree earned. Scores of participants with a master's level degree ( $n = 30$ ) ranged from 19-36, with a mean of 27.60 ( $SD = 5.16$ ). The mean score is equal to 69% correct on the total score for participants with a master's degree. Scores of participants with a specialist level degree ( $n = 47$ ) ranged from 20-38, with a mean of 29.73 ( $SD = 4.59$ ). The mean score is equal to 74% correct on the total score for participants with a specialist degree. Scores of participants with a doctorate level degree ( $n = 28$ ) ranged from 22-36, with a mean of 28.71 ( $SD = 3.76$ ). The mean score is equal to 72% correct on the total score for participants with a doctorate level degree.

Descriptive statistics for total score on the Modified BSP Knowledge Test disaggregated by the highest degree earned are provided in Table 6.

**Research Question 2.** Do function-based behavior support planning competencies differ for practicing school psychologists at the master's, specialist, and doctoral levels? The variables include highest degree earned and total raw score on the Modified BSP Knowledge Test. First, descriptive statistics were conducted for highest degree earned and total score on the Modified BSP Knowledge Test. Descriptive statistics for the total score and subscores on the Modified BSP Knowledge Test and total score on Modified BSP Knowledge Test disaggregated by the highest degree earned were described in detail in the previous section (as the focus of Research Question 1) and are provided in Table 5 and Table 6, respectively.

Next, common assumptions of inferential statistical tests were conducted for highest degree earned and total score on the Modified BSP Knowledge Test. Visual examination of histograms and boxplots revealed all distributions of total score by highest degree earned were unimodal, roughly symmetrical, and without outliers. Thus, the assumption of normality was tenable. Next, the assumption of homoscedasticity was evaluated using Levene's statistic due to the predictor variable having unequal groups and unequal variances. The analysis was not significant,  $F(2, 102) = 1.62, p = .20$ , therefore the assumption of homoscedasticity was tenable. Following the testing of common assumptions, a one-way, between subjects ANOVA was conducted to test the hypothesis that participants with a doctorate level degree will have statistically higher scores on the Modified BSP Knowledge Test than participants with a master's or specialist degree. The analysis did not yield significant differences by highest degree

earned on the Modified BSP Knowledge Test,  $F(2, 102) = 1.80, p = .17$ . Examination of planned comparisons (examining differences between doctorate and master'/specialist levels) was not appropriate, as the omnibus test was not significant. The results of this analysis are presented in Table 7.

### **Research Question 3.**

3(a) To what degree does the amount of post-graduate training in function-based behavior support planning predict function-based behavior support planning competencies?

3(b) To what degree does school psychologists' self-reported effectiveness of their post graduate training in function-based behavior support planning predict their function-based behavior support planning competencies?

3(c) What is the interaction of the amount of postgraduate training\* self-reported effectiveness of post-graduate training in function-based behavior support planning on function based behavior support planning competencies?

The variables included amount (in number of hours) and self-reported effectiveness (as a percentage) of training in function-based behavior support in the last two consecutive years as predictors. The criterion was function-based behavior support competency, as measured by the total score on the Modified BSP Knowledge Test. A hierarchical multiple regression analysis was used to answer research questions 3 (a), (b) and (c) and was performed on only participants who had received training within the last two years ( $n = 25$ ). The variable 'years employed as a school psychologist' was controlled for as a possible covariate.

First, descriptive statistics were run on each variable. Total score on the Modified BSP Knowledge Test had a range of 19-38 points and a mean of 29.28 ( $SD = 4.96$ ). Amount of training had a range of 2-45 hours and mean of 16.52 ( $SD = 12.20$ ). Self-reported effectiveness had a range of 9-100% effectiveness and a mean of 83.52 ( $SD = 22.37$ ). Years employed as a school psychologist had a range of 2-34 years and a mean of 11.20 ( $SD = 8.97$ ). Descriptive statistics for this analysis are provided in Table 8.

Next, assumptions for linear regression were considered for the 25 participants included in the data analysis. The assumption of normality was tested by visual examination of histograms (for unimodality and kurtosis), boxplots, and P—P plots (Rovai, Baker, & Ponton, 2013). Distributions of each variable were unimodal, mesokurtic, and approximately symmetrical, thus the variables were considered tenable for the assumption of normality. Next, assumption of linearity was tested by visual examination of the bivariate scatterplot and residual plots. Residual data point scatter approximated a linear trend (i.e., no systematic patterns to residual scatter) and were considered tenable for meeting the assumption of linearity (Rovai, Baker, & Ponton, 2013). The assumption of homoscedasticity was evaluated with a visual examination of scatterplots for predictors against the DV. Residuals varied around zero and the spread was about the same throughout the plot with no systematic patterns, thus the assumption of homoscedasticity appeared tenable (Rovai, Baker, & Ponton, 2013). Finally, the assumption of multicollinearity was tested by requesting collinearity diagnostics. Tolerance was over .2 and the bivariate correlation coefficients were less than .90, thus the assumption of multicollinearity appeared tenable (Rovai, Baker, & Ponton, 2013).

Next, a hierarchical multiple regression analysis was conducted. Specifically, main

effects of amount of post-graduate training and self-reported effectiveness of post-graduate training on the total raw score on the Modified BSP Knowledge Test and the interaction between the amount of training (in hours) by effectiveness of training in function-based behavior support planning competencies were tested. The first model controlled for the number of years participants were employed as a school psychologist (as a covariate), the second model accounted for the main effects of hours and effectiveness of training on the Modified BSP Knowledge Test score (entered simultaneously), and a third model added a predictor representing the interaction between amount and effectiveness of training. The overall regression incorporating both amount and effectiveness of training was not statistically significant,  $F(4, 24) = .414, p = .797$ . See Table 9 for a model summary of the results of the analyses conducted for research question 3.

**Follow-up analysis.** After the conducting the analysis for research question 3 (described above), a follow-up analysis was conducted to determine whether receiving training within the last two consecutive years predicted scores on the Modified BSP Knowledge Test. The majority (76%) of the 105 participants reported receiving no training in function-based behavior support within the last two consecutive years and only 29% reported receiving training. Due to concerns related to the violation of the assumption of normality and in order to alleviate severe skew, the variables of amount and effectiveness of training were recoded into one dichotomous categorical variable (where 1 = received training and 0 = did not receive training) and were dummy-coded for analysis. Descriptive statistics of the total score on the Modified BSP Knowledge Test were described in detail in the previous section as the focus of Research Question 1 and

are provided in Table 5. Descriptive statistics of the variables amount and effectiveness of training for all participants ( $N = 105$ ) are provided in Table 10. A simple linear regression with total score as the criterion variable and training within the last two consecutive years as the predictor was conducted to examine whether receiving training within the last two consecutive years on function-based behavior supports predicted scores on the Modified BSP Knowledge Test. This analysis was not significant,  $F(1, 104) = .002, p = .963$ . This indicated that participants' scores on the Modified BSP Knowledge test did not differ based on the presence or absence of training within the last two consecutive years.

**Post-hoc power analysis.** Post-hoc power analyses using G\*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009) were conducted for the data analyses used to answer research questions 2 and 3. For research question 2 (ANOVA), the key parameters entered were a sample size of 105, an observed effect size of .19 (calculated in G\*Power using means) and an alpha level of 0.05 ( $p < .05$ ). The effect size (ES) in this study was .19, considered to be small using Cohen's (1988) criteria. This resulted in a calculated power to detect a statistically significant result at .38 to detect a statistically significant result. See Figure 3 (Appendix F) for details on the post-hoc power analysis for research question 2.

For research question 3 (multiple regression), the key parameters entered were sample a size of 25, 2 tested predictors, an observed effect size of .0822 (calculated in G\*Power using partial  $r^2 = .076$ ), and an alpha level of 0.05 ( $p < .05$ ). The ES of .0822 in this study is considered to be small using Cohen's (1988) criteria. This resulted in a calculated power to detect a statistically significant result at .206. See Figure 4 (Appendix

F) for details on the post-hoc power analysis for research question 3.

### **Summary**

Descriptive statistics of participants' competencies in function-based behavior support planning (indicated by scores on the Modified BSP Test), showed wide variation of scores, with a mean of 28.80 ( $SD = 4.60$ ) and a range of 19-38. The mean is equal to a score of 72% correct. In addition, approximately two-thirds of participants (67%) did not meet the proficiency criteria of 80% correct or above on the Modified BSP Knowledge Test. The analysis of research question 2 indicated that there were no significant differences in total scores on the Modified BSP Knowledge Test between participants with master's, specialist, or doctorate degrees. Next, the analysis of research question 3 indicated that receiving training within the last two consecutive years on function-based behavior support did not predict scores on the Modified BSP Knowledge Test. In addition, of those participants who did indicate receiving training, neither the amount of time spent in training or self-reported effectiveness of training predicted total scores on the Modified BSP Knowledge Test, even when years employed as a school psychologist was controlled for. Finally, post-hoc power analyses for research questions 2 and 3 revealed that given the parameters of the current study, the effect sizes were small by Cohen's criteria (1988) and the calculated power level for both analyses were low at .38 and .206, respectively.



## CHAPTER IV

### DISCUSSION

It is clear that despite the best efforts of schools to build academic and behavioral systems of support for all students, a small proportion of students will require a much more intensive and sustained level of support in order to be successful within the classroom setting and to learn important life skills (Gable et al., 2009; Lane et al., 2004; Theodore et al., 2004; Tingstrom et al., 2006). Function-based behavior support planning is one of the most common and most empirically supported intervention modalities utilized for providing behavior supports within school settings (Benazzi et al., 2006; Carr & Langdon, 1999; Didden et al., 1997; Gable et al., 2009; Lane et al., 2004; March & Horner, 2002; Theodore et al., 2004; Tingstrom et al., 2006). Despite its widespread use, extant research depicts a frightening reality: many behavior support plans are not function-based nor are technically adequate, and may even include components that serve to increase the frequency and intensity of problem behavior (Cook et al., 2007; Yell, 2002). Until research explores the skills school psychologists currently possess in function-based behavior support planning, little can be done to remediate the weaknesses of current behavior support planning practices in schools.

The purpose of this study was to investigate the function-based behavior support planning competencies school psychologists possess and to explore factors that may be pertinent to improving such competency, such as pre-service and post-graduate training. The current study advances the extant literature base by directly assessing a critical skill in designing efficacious function-based behavior support planning. Specifically, the current study assessed participants' skills on identifying and selecting comprehensive

behavior support plan components (strategies) that are directly matched to the hypothesized function of problem behavior with a national sample of school psychologists. From these data, initial evidence regarding the competencies in function-based behavior support planning of school psychologists on a nation-wide basis can be identified.

Function-based behavior support planning competency was assessed using the Modified BSP Knowledge Test (Strickland-Cohen & Horner, 2015), which consisted of five hypothetical behavior vignettes and hypothesized function of behavior statements, each with eight corresponding items consisting of potential BSP strategies. Participants identified behavior support plan strategies as function-based, neutral, or contraindicated. The research questions focused on (a) describing participants' performance on this assessment and (b) exploring the relation between scores and training characteristics, including highest degree earned and amount and perceived effectiveness of training in function-based behavior support planning skills within the last two consecutive years. The following sections include (a) a review of main findings and implications for each research question, (b) implications for research and practice (c) limitations of the current study, and (d) recommendations for future research.

### **Discussion of Research Questions**

The following section of this chapter offers a detailed discussion of main findings for each research question. Each research question is stated, its most relevant results summarized, and implications are discussed.

**Research Question 1.** Using scores derived from the Modified BSP Knowledge Test, what current competencies in function-based behavior support planning do

practicing school psychologists currently possess? It was hypothesized that less than half of school psychologists would meet the competency criteria of 80% correct (total raw score of 32) on the Modified BSP Knowledge Test. The results showed that this hypothesis was supported. In fact, the findings showed that the majority of participants (76%) were not able to correctly identify behavior support strategies as function-based in at least 80% of items. An examination of subscores reveals that participants, on average, also consistently performed below the proficiency criteria across function-based, neutral, and contraindicated subscores. Thus, it can be said that school psychologists experienced a similar amount of difficulty in this task, regardless of the particular intervention strategy type (function-based, neutral, or contraindicated). This may indicate a generalized deficiency in identifying function-based support strategies, rather than a specific difficulty by type.

This hypothesis was based on previous research that utilized an earlier version of the Behavior Support Plan Knowledge Test (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002; Strickland-Cohen, 2011). Researchers found participants did not accurately identify the function of student problem behavior when provided with vignettes or videos and/or sufficiently demonstrate the knowledge and skills necessary to develop function-based supports (as indicated by a score of 80% or above on the pretest assessment). Specifically, in a precursor study using an earlier version of the Modified BSP Knowledge Test, Strickland-Cohen (2011) found that average performance of the 13 participants was 58% correct and scores ranged from 31-84%, with only one participant meeting the 80% correct proficiency criteria. Participants included a range of school personnel, including counselors, principals, literacy specialists, graduate students of

special education, and teachers. The findings from the current study parallel prior research using this measure, and add to the literature by using a comparatively larger sample consisting exclusively of school psychologists from across the United States. However, direct comparisons cannot be made as the format of the Behavior Support Plan Knowledge Test changed with each successive study.

Total scores on the Modified BSP Knowledge Test were disaggregated by the highest degree earned. Descriptively, mean performance on total scores were similar, but examination of boxplots for each group revealed that the group of school psychologists holding doctorate level degrees' performance more consistently centered around the mean, with a smaller range than either the master's or specialist groups. This could be indicative of an increased level of consistency in doctoral level school psychology training programs with regard to function-based behavior support training. Disaggregating these data by highest degree earned provides descriptive evidence of differences in function-based behavior support planning competences across school psychologists with different degrees. It should be noted that these findings are exploratory and descriptive in nature, thus these findings should not be inferred as evidence of a meaningful relationship.

**Research Question 2.** Do function-based behavior support planning competencies differ for practicing school psychologists at the master's, specialist, and doctoral levels? To answer this question, an ANOVA was conducted to determine if there was a correlation between performance on the Modified BSP Knowledge Test and highest degree earned. The hypothesis for research question 2 was that performance would vary in regards to highest degree earned. Specifically, it was hypothesized that

individuals who received their terminal school psychology degree at the doctorate level would have higher function-based behavior support planning competencies than individuals with a terminal master's or specialist degree as indicated by higher scores on the Modified BSP Knowledge Test. It was also hypothesized that the master's and specialist level degree groups' performance on the Modified BSP Knowledge Test would not differ from each other in a statistically meaningful manner. The results of the current study do not support this hypothesis, however. Specifically, no statistically significant differences were found between groups by highest degree earned. This indicates that participants' demonstrated competency in function-based behavior planning had no statistically meaningful relationship to the highest degree participants had earned.

The findings from the current study differ from findings from prior research in related areas, which have provided evidence that the training and performance of doctorate level school psychologists may differ from their master's and specialist degree level counterparts (Costenbader & Swartz, 1992; Croninger, et al., 2007; Eberts & Stone, 1984; Ferguson & Ladd, 1996; Kiesling, 1984; Murnane, 1975; Murnane & Phillips, 1981; Rowan et al., 2002). For example, Costenbader and Swartz (1992) found that doctorate level school psychologists were more likely to have received additional formal training in consultation, rate their training as higher quality, and also rated themselves as having higher consultation skills than participants with master's or specialist rated themselves on these skills. However, this study was limited by participants' self-report and evaluation of consultation skills. Thus, it cannot be determined whether participants with a doctorate level degree did indeed have higher skills (Costenbader & Swartz, 1992). One particular advantage of the current study was the use of a direct objective

assessment of participant skills in function-based behavior support planning rather than a reliance on self-report measures used in prior studies (Costenbader & Swartz, 1992; Croninger et al., 2007; Eberts & Stone, 1984; Ferguson & Ladd, 1996; Kiesling, 1984; Murnane, 1975; Murnane & Phillips, 1981; Rowan et al., 2002).

A number of explanations may account for finding no differences among the performance of the three groups based on their highest degree earned. First, it could be that function-based behavior support planning competencies are covered during pre-service training to a similar extent regardless of the specific program type. This consistency would make sense, as the majority of programs in school psychology are accredited or approved by major professional organizations, and licensing requirements are fairly standardized across the country (Merrell et al., 2006). Thus, in order to gain entry into the field as a licensed school psychologist, the current findings may be reflective of a minimum threshold for competency in this area. Alternately, these results may be indicative of the more broad phenomena of programs varying in content and quality more widely across programs as opposed to between programs by degree type. There is much variation in pre-service school psychology training programs, and it was beyond the scope and intent of the current study to include objective measures of program quality to assess this possibility.

**Research Question 3.** Research question 3 consisted of three parts examining the predictive power of amount and effectiveness of training on function-based BSP competencies. The hypothesis for each question is described for each question part and then findings for the complete model are interpreted in the following section. A discussion of the implications of findings for research question 3 as a whole are then

provided.

3(a) To what degree does the amount of post-graduate training in function-based behavior support planning predicts function-based behavior support planning competencies? It was hypothesized that individuals with more training in function-based behavior support planning, as indicated by the number of post-graduate training hours obtained within the last two years, would have higher competencies in function-based behavior support planning as indicated by higher scores on the Modified BSP Knowledge Test. The results of the current study do not support this hypothesis, as the analysis of the main effect of hours of training on scores on the Modified BSP Knowledge Test was not significant. Thus, this analysis indicated that there was no statistically significant relationship between the amount of training participants had received in the last two consecutive years and total score. In other words, scores on the Modified BSP Knowledge Test varied evenly, regardless of the amount of training participants received. There was no systematic pattern found based on the amount of training and function-based behavior support planning competency. This result was in contrast to previous research in relevant areas and is discussed below (Costenbader & Swartz, 1992; Van Acker et al., 2005).

3(b) To what degree does school psychologists' self-reported effectiveness of their post graduate training in function-based behavior support planning predict their function-based behavior support planning competencies? It was hypothesized that individuals with higher self-reported post-graduate training effectiveness would have higher competencies in function-based behavior support planning as indicated by higher scores on the Modified BSP Knowledge Test. The results of the current study do not

support this hypothesis, as the analysis of the main effect of self-reported effectiveness of training on scores on the Modified BSP Knowledge Test was not significant. These findings indicate that the effectiveness of training, as perceived by participants, did not have an effect on their function-based competency. Put another way, participants who self-reported that their training had a low level of effectiveness were just as likely to have a high score on the Modified BSP Knowledge Test as participants who perceived their training to be highly effective. No systematic pattern was found between self-reported effectiveness and function-based behavior support planning competency.

3(c) What is the interaction of the amount of post-graduate training\* self-reported effectiveness of post-graduate training in function-based behavior support planning on function-based behavior support planning competencies? The hypothesis for research question 3 (c) was that participants with higher amounts of training in conjunction with higher levels of effectiveness would demonstrate higher competencies in function-based behavior support planning as indicated by higher scores on the Modified BSP Knowledge Test (Costenbader & Swartz, 1992; Harnett & Dadds, 2004; Hsiao & Albin, 2000; Mitachi, 2002; Sawka, McCurdy, & Mannella, 2002; Shapiro, Miller, Sawka, Gardill, & Handler, 1999). However, a significant interaction effect of amount\* self-reported effectiveness of training was not found. This finding indicates that there was no statistically significant relationship when both the amount and effectiveness of recent training are entered into the model.

Taken together, the findings from research question 3 are in contrast to previous related research (Costenbader & Swartz, 1992; Harnett & Dadds, 2004; Hsiao & Albin, 2000; Mitachi, 2002; Van Acker et al., 2005). For example, Van Acker et al. (2005)



found in their study that BSP school teams that included at least one individual with ‘extensive training’ developed plans that were significantly more likely to meet current standards of adequacy. Interestingly, Mitachi (2002) found that untrained participants outperformed the trained group in identifying problem behaviors when provided with clear functional assessment information. Results of the current study, however, did not provide support that training amount and self-reported effectiveness significantly predicted scores on the Modified BSP Knowledge Test.

A number of explanations may account for these findings. First, it could be that clearly providing the hypothesized function of problem behavior to participants within the assessment’s vignettes may have provided participants with enough resources that enabled participants to answer the assessment items consistently. However, it is unknown as to whether participants purposely utilized the information provided in the vignettes as intended.

In addition, the current study differed significantly from previous research in that competencies in function-based behavior support planning were directly assessed and participants were asked to focus on characteristics of their post-graduate training that occurred within only the last two consecutive years. This was a deliberately selected feature of the study design in an effort to balance the reliability and accuracy of self-reporting on post-graduate training. Specifically, an accurate estimation of hours received increases in difficulty as the ability for participants to accurately recall this information degrades over time. Also, given the intent and preliminary nature of the current study, it was not feasible to collect a more robust objective measure of training, such as a submission of continuing education credits or a direct assessment on quality of the

training received. This may have resulted in an inability to detect whether post-graduate training has a true effect.

**Follow-up analysis.** Frequency counts revealed that only 29% of study participants had received training in function-based behavior support planning within the last consecutive two years. Although there was no formal hypothesis posed regarding the predicted proportion of participants indicating they had received training within the last two consecutive years, the observed number was lower than expected given previous studies in related topics. For example, in a national survey of school psychologists conducted by Nusz (2008), the majority of participants indicated they had received post-graduate training in the BSP-related content area of functional behavior assessment. Nelson et al. (1999) also found that most school psychologists had received post-graduate training in FBA, but participants perceived their training in FBA to be inadequate. These findings, in conjunction with the findings of the current study, provide support for an agreement amongst school psychologists that most have had some exposure or training post-graduation with function-based behavior supports, but that this training may not have been recent nor perceived as sufficient.

### **Implications for Practice and Research**

One important implication of the results from the current study is that the majority of school psychologists have not achieved mastery of a critical prerequisite skill for developing technically adequate (and thus effective) function-based behavior support plans. Although limited in scope, design, and power, findings from the current study seem to highlight an area of weakness in the competencies of school psychologists and may indicate a more widespread problem regarding the behavior support students receive

within school settings than previously indicated (Hsiao & Albin, 2000; Mitachi & Albin, 2001; Mitachi, 2002; Myers & Holland, 2000; Nelson et al., 1999; Nusz, 2008; Strickland-Cohen & Horner, 2015). The extent to which a deficit in the skill of identifying function-based strategies translates to the technical adequacy and effectiveness of the behavior support plans created is currently unknown and was not examined by the current study. However, it is reasonable to assume that behavior support plans that do not contain a minimum level of technical adequacy could have a serious detrimental effect on BSP efficacy. Therefore, the findings of the current study indicate the importance of further investigating (a) behavior support planning competencies of school psychologists and behavior support planning teams, and (b) the technical adequacy of BSPs.

Moreover, school staff who implement BSPs that are not sound may find the plans to be ineffective and choose to discontinue. This could in turn decrease the use of function-based supports with future students (as BSPs that are said to be function-based are incorrectly viewed as ineffective by teachers), which could result in an overreliance on other methods such as punishment, or emphasize strategies selected based on implementer preference instead of matched to the student's needs. Future research is needed to determine the critical threshold of technical adequacy of function-based BSPs required for sustained positive student outcomes. From this type of research, guidelines could be set for minimum technical adequacy and allow for more specific recommendations regarding professional development to remediate this problem within the field of school psychology.

Although causality cannot be assumed from the current study, one potential cause of the observed behavior support planning skill deficiency is the sequence of pre-service training and continuing education of school psychologists. This potential issue should not be ignored, and it will be important to dedicate further research to examining this possibility in order to target methods for which to improve the competencies of school psychologists.

Specifically, results of the current study indicated that there was more variation among participants within degree and training subgroups in their function-based behavior support planning competencies than between subgroups of participants by highest degree earned and recent training. Approximately two thirds of currently practicing school psychologists, as indicated by scores on the Modified BSP Knowledge Test, did not meet the proficiency criterion for identifying intervention strategies as function-based. However, there were participants who indeed possessed these skills, and more research is needed to learn about the process of how these individuals became proficient.

Perhaps not surprisingly given the small proportion of participants meeting proficiency criteria, approximately two thirds of all respondents have not received post-graduate training in function-based behavior support planning within the last two consecutive years. This gap may also exist because the skills necessary to develop effective BSPs may not be easily acquired through cursory and/or one-time professional development sessions (Blood & Neel, 2007). It thus seems plausible that school psychologists will be unable to obtain the prerequisite skills needed to develop technically adequate BSPs without some kind of additional training and/or support. Research is needed to experimentally test elements that constitute high quality training in

this area. For example, a focus on coaching as a key part of training for behavior support plan school teams.

This study provided evidence that, through the wide range and normal distribution of scores, the Modified BSP Knowledge Test is sensitive to varying ranges of competency in regards to function-based behavior support planning within this sample of school psychologists. Although not directly tested in the current study, the use of a direct assessment, such as the Modified BSP Knowledge Test, could be viewed as a useful tool for school psychologists to self-assess their competencies and to determine whether there is a need to seek out training, coaching, or other support to enhance their skill in this area. Additionally, in light of the current findings, pre-service training programs and accreditation agencies may opt to explore the utility of requiring more direct assessment of composite and pre-requisite skills needed for school psychologists to develop technically sound function-based behavior support plans during graduate training and prior to becoming licensed.

### **Limitations**

The following section of this chapter offers a detailed discussion of limitations of the current study. Each limitation is presented, relevant concerns are noted, and the implications are then discussed.

**Response rate and sample size.** Threats to the external validity of this research exist which may also limit the ability to generalize the findings to the population of school psychologists practicing in public schools due to low response rate and sample size. A recent national survey of NASP members indicated typical survey response rates for self-administered surveys provided to school psychologists were as follows (a) 37.7%

of participants contacted via e-mail, (b) 45.7% of participants contacted via postal mail, and (c) a total survey response rate of 44.1%. (Castillo et al., 2010). Another national survey of school psychologists conducted by Robertson (2011), observed a much lower response rate of 14.3%. In that study, participants were provided with a link to a survey housed online, much like the current study. However, in the current study, participants had to use a two-step process to gain access to the survey. First, participants received a written website address and password via a postal mailing and then needed to manually enter the web address and password on the Qualtrics site. A QR code (for participants with smartphone devices) was also provided, which may have been perceived as more user-friendly method to access the survey online opposed to manual entry. However, the final response rate of this study was 10.5% despite multiple mailings of the survey link and the addition of a small incentive. A response rate of this size calls into question the characteristics associated with those that did not participate and the impact this might have had on the results of the study. With such a large proportion of individuals choosing not to participate, any generalization of these findings must be made with caution (Babbie, 1990; Fowler, 2009; Sue & Ritter, 2012)

Additionally, the small sample size limited the ability to detect significant differences with small effect size. The ES for the ANOVA in this study was .19, considered to be small using Cohen's (1988) criteria. This resulted in observed power of .38 to detect a statistically significant result. This is much lower than a power level of .8, which is typically considered desirable (Hunt, 2012). Thus, in order to be sufficiently powered at .8 and given the current effect size, the sample size would be expected to need to increase to 279 participants to be able to reject the null hypothesis. The ES for the

hierarchical multiple regression of .0822 in this study is considered to be small using Cohen's (1988) criteria. This resulted in a calculated power to detect statistically significant result at .206, also much lower than typically considered desirable power level of .80 (Hunt, 2012). Thus, in order to be sufficiently powered at .80, given the current effect size, the sample size would need to increase to 40 participants to be able to reject the null hypothesis. In studies with a small sample size and expected small effect size, there is an increased probability of making a Type II error, whereby a 'true' effect is not detected. Specifically, the probabilities of making a Type II error were .62 for research question 2 and .794 for research question 3. Therefore, it may be premature to conclude that training does not have an impact on function-based behavior support planning competencies given the sample size of the current study.

**Selection bias.** Selection bias is always a threat to the validity of a study when using survey methodology as there is always the possibility that important differences exist between those that elected to participate in the study and those that did not (Babbie, 1990; Fowler, 2009; Sue & Ritter, 2012). In particular, the highest number of participants in the current study indicated that their school psychology training program was from a behavioral theoretical orientation. Direct comparative data from NASP data on this characteristic is not available, so it is unknown whether this is representative of the general NASP membership, or reflective of an artifact of selection bias. In particular, there is a distinct possibility that participants who had pre-service training with a behavioral orientation (which is most directly aligned with the conceptual foundation of applied behavior analysis and function-based behavior support planning by extension) were more likely to feel confident in their function-based behavior support planning skills

and thus more likely to participate in the study. Findings should be interpreted in light of this possibility.

In addition, it should be noted that the participants in this study are all members of NASP. It cannot be known whether those school psychologists who are members of NASP, which ensures at least a minimal exposure to the current research in school psychology, would respond differently than school psychologists who are not members of NASP.

**Study design.** Another limitation is the study design. Related research on consultative skills and training (Costenbader & Swartz, 1992) has indicated a positive relationship with amount and quality of training, such that the more training that was received, the higher the quality of training was rated. This study was exploratory in nature, which posed some limitations. Specifically, only prior research from similar content areas (i.e.; FBA) or samples (i.e.; school personnel other than school psychologists) was used to guide exploration of potentially viable variables. Thus, the current study was limited by not having a strong body of research that specifically investigated the relation between effectiveness of training and amount of training and Modified BSP Knowledge Test score to guide hypotheses and exploration of variables. In addition, the design does not provide the ability to determine causal direction, as would be possible through experimental design or more sophisticated methods of statistical modeling (Salvia, Ysseldyke, & Bolt, 2009; Pedhazur, 1997). Thus, it is important to note that this study was exploratory, and that interpretation of results should be accepted with caution.



## **Future Research Directions**

The current study extended the extant body of knowledge on school psychologists' competencies in function-based behavior support planning. Utilizing a direct assessment, as opposed to self-perception measure of skill, is highly advantageous for defining the current state of affairs regarding the research to practice gap within the field of school psychology. As with any new technology, the implementation of such effective practices within school settings requires considerable time, resource allocation, training, and adaptation to general and specific school contexts. Future research should continue and expand the use of direct assessments to expand our understanding of school psychologist's skills related to other components of the FBA to BSP process, including the technical adequacy of assessment, consideration of context and feasibility in BSP design, social validity, fidelity of implementation, and evaluation of behavior support plans.

Additional research needs to be conducted to determine skills school psychologists do not possess in order to explain why behavior plans are not being developed and implemented in the manner intended. The current study demonstrated that many school psychologists are deficient in identifying function-based intervention strategies. There may be other critical skill components that also need additional training before real-world BSPs become more technically adequate. Specifically, more work needs to be done exploring the relation between specific features of prior training experience, such as latency, type, length, and the addition of feedback coaching, or other support and the impact of those features on competency.

Another area for future research is to analyze the incremental validity (i.e.; value added) of team versus individual performance on direct assessments of function-based behavior support planning competencies. In the real world settings of schools, BSPs are typically developed with a team (Albin et al., 1996; Benazzi et al., 2006). Studies could include examination of direct assessments completed by teams versus individuals.

Another research direction would be to also examine real BSPs developed by teams and/or utilize observations of school BSP teams during the decision making process and planning of behavior support plans. A more detailed look at what elements are included in plans and how successful school teams specifically use FBA data is needed to better inform professional development practices. Rigorous studies of this nature would provide insight into the interplay of group dynamics and more accurately approximate real-world situations.

Finally, another area needed to explore further in future research is analyzing the efficacy of training using a pre-post experimental design. For example, experimental studies are needed that compare participant's directly assessed skills before and after receiving a specific (i.e., manualized) training sequence. Follow-up studies could take this a step further by experimentally manipulating components of the training in order to develop a sequence that is most effective and efficient. Insights gained from such studies could then be used to make empirically-based recommendations for scaling up of training.

## **Summary**

This chapter provided a discussion of the results presented in Chapter III. First,

the findings in relation to each research question were summarized and interpreted. Results of the study indicated that an alarming proportion of school psychologists did not meet the criterion for proficiency on this measure. Importantly, the current study did not find statistically significant differences in performance based on highest degree earned, nor was training within the last two consecutive years found to predict performance of school psychologists on this measure.

Next, several limitations of the study were described. Specifically, implications of the study findings were limited by low response rate and small sample size and the exploratory and correlational nature of the study design. Replication of the current study with an increase in participants and an experimental component would increase the ability to draw strong conclusions from the analyses.

Implications for the practice of school psychology discussed in the following section focused on the need for additional training and support in this content area for the majority of school psychologists. Direct assessments of competency in this area could serve to identify those individuals in further need of skill refinement.

The final portion of the chapter discussed recommendations for future research, including exploring specific features of training that increase proficiency, the interplay of group dynamics and real BSPs, and the addition of experimental studies examining the impact of manualized trainings on function-based BSP competencies.

In conclusion, it is important to bear in mind that scaling up and increasing the technical adequacy of all components of the FBA/BSP process cannot be treated in isolation. While highly empirically supported, development of an individualized function-based behavior support plan requires a considerable amount of time and

personnel resources. In order to meet the needs of our most behaviorally fragile students, children need to be provided with additional supports in the form of a multi-component function-based behavior support plan. In order for these plans to be effective, each intervention strategy within the plan must be directly designed to address the function of problem behavior. Therefore, plan developers (i.e., school psychologists) that possess strong technical skills in function-based behavior support planning are required.

Unfortunately, the current study has provided evidence that many school psychologists, school personnel who are often a part of behavior support plan development teams, are not proficient in a critical skill necessary to create a technically adequate behavior support plan. Furthermore, analysis of two possible factors that may account for this common deficiency: pre-service training (highest degree earned) and recent post graduate training, did not reveal significant differences between groups nor predictive power on scores.

In order to provide direction on how to rectify current low level of proficiency to ensure that every child receive the behavior support that they need and deserve, further research is needed to determine which specific factors directly impact proficiency levels. The current study provides an initial contribution to the specific recommendations for assessment of critical skills and training characteristics that can lead to more technically accurate and effective function-based behavior support plans in school settings.

APPENDIX A

TABLES

Table 1.

*Demographic Characteristics of Sample and NASP Members in 2009-2010*

| Characteristic                              | n   | %    | % of NASP Members (2010) |
|---|-----|------|--------------------------|
| <b>Sex</b>                                  |     |      |                          |
| Male  | 13  | 12.4 | 23.4                     |
| Female                                      | 91  | 86.7 | 76.6                     |
| Prefer not to answer                        | 1   | 1.0  |                          |
| <b>Race/Ethnicity</b>                       |     |      |                          |
| African American                            | 3   | 2.9  | 3.0                      |
| Caucasian                                   | 95  | 90.5 | 90.7                     |
| Native American/ Alaska Native              | 0   | 0.0  | 0.6                      |
| Asian/Pacific Islander                      | 3   | 2.9  | 1.3                      |
| Hispanic                                    | 2   | 1.9  | 3.4                      |
| Other                                       | 0   | 0.0  | 0.1                      |
| Prefer not to answer                        | 2   | 1.9  |                          |
| <b>Highest Degree Earned<sup>a</sup></b>    |     |      |                          |
| Masters                                     | 30  | 28.6 | 25.1                     |
| Specialist                                  | 46  | 43.8 | 45.8                     |
| Doctorate                                   | 29  | 27.6 | 24.2                     |
| <b>Primary Employment</b>                   |     |      |                          |
| Practicing school psychologist <sup>a</sup> | 105 | 100  | 80.6                     |
| University Faculty                          |     |      | 7.5                      |
| Administrator                               |     |      | 4.5                      |
| State Department                            |     |      | 0.1                      |
| Other <sup>b</sup>                          |     |      | 7.3                      |
| <b>Employment Setting</b>                   |     |      |                          |
| Public Schools <sup>a</sup>                 | 105 | 100  | 83.7                     |
| Private Schools                             |     |      | 6.4                      |
| Faith-based Schools                         |     |      | 2.6                      |
| University                                  |     |      | 7.4                      |
| Independent Practice                        |     |      | 3.5                      |
| Hospital/Medical                            |     |      | 0.8                      |
| State Department                            |     |      | 0.6                      |
| Other                                       |     |      | 3.7                      |

Table 1. Continued

| Characteristic                                 | N  | %    | % of NASP Members (2010) |
|--|----|------|--------------------------|
| <b>Years Employed as a School Psychologist</b> |    |      |                          |
| 0 to 5   | 34 | 32.4 |                          |
| 6 to 10  | 27 | 25.8 |                          |
| 11 to 15                                       | 15 | 14.5 |                          |
| 16 to 20                                       | 6  | 5.9  |                          |
| 21 to 25                                       | 8  | 7.8  |                          |
| 26 to 30                                       | 5  | 4.8  |                          |
| 31 to 35                                       | 4  | 3.9  |                          |
| 36 to 40                                       | 3  | 2.9  |                          |
| Missing  | 3  | 2.9  |                          |
| <b>% Students Eligible Free or Reduced</b>     |    |      |                          |
| 0 to 10  | 2  | 1.9  |                          |
| 11 to 20                                       | 5  | 5.7  |                          |
| 21 to 30                                       | 7  | 6.7  |                          |
| 31 to 40                                       | 9  | 8.8  |                          |
| 41 to 50                                       | 7  | 6.7  |                          |
| 51 to 60                                       | 7  | 6.7  |                          |
| 61 to 70                                       | 7  | 6.7  |                          |
| 71 to 80                                       | 8  | 7.7  |                          |
| 81 to 90                                       | 6  | 5.8  |                          |
| 91 to 100                                      | 7  | 6.7  |                          |
| Not sure                                       | 40 | 38.1 |                          |
| <b>Grade Levels Served<sup>d</sup></b>         |    |      |                          |
| Pre-K  | 42 | 40.0 |                          |
| K-5  | 74 | 70.5 |                          |
| 6-8  | 63 | 60.0 |                          |
| 9-12   | 48 | 45.7 |                          |
| Post-secondary                                 | 9  | 9.5  |                          |

*Note.* Demographic information from the results of the NASP National Membership Study 2010 ( $N = 1,272$ ).

<sup>a</sup>The participant list for the current study ( $N = 1,000$ ) provided by NASP was stratified for equal numbers of individuals with highest degree level of (a) master's, (b) specialist, and (c) doctorate. <sup>b</sup>This characteristic was used for inclusionary criteria in the present sample. <sup>c</sup>Respondents in the 'other' category included roles such as Behavioral Specialists, Educational Consultants, Counselors and Intervention Specialists. <sup>d</sup>The frequency of responses does not sum to 100% because school psychologists were permitted to indicate multiple populations of students if appropriate based on their current role.

Table 2.

*Region of Country Where Survey Respondents Were Employed*

| Region        | States in Region              | N  | %    |
|---------------|-------------------------------|----|------|
| New England   | <b>CT, ME, MA, NH, RI, VT</b> | 8  | 7.6  |
| Mid-Atlantic  | <b>DE, MD, NJ, NY, PA</b>     | 24 | 22.9 |
| Mid-South     | <b>KY, NC, SC, VA</b>         | 9  | 8.6  |
| Deep South    | <b>FL, GA</b>                 | 8  | 7.6  |
| Great Lakes   | <b>IL, IN, MI, OH, WI</b>     | 25 | 23.8 |
| Upper Plains  | <b>IA, MN, NE, SD</b>         | 7  | 6.7  |
| South Central | <b>MO, OK</b>                 | 3  | 2.9  |
| Southwest     | <b>AZ, CO</b>                 | 5  | 4.8  |
| Northwest     | <b>OR, WA</b>                 | 8  | 7.6  |
| Pacific West  | <b>CA</b>                     | 7  | 6.7  |

*Note.* Participants worked in 33 states, with a range of 1-9 participants represented per state.

Table 3.

*Characteristics of Participants' Graduate Training in School Psychology*

| Variable                           | N  | %    |
|------------------------------------|----|------|
| Training Setting                   |    |      |
| Public University or College       | 69 | 74.2 |
| Private University or College      | 23 | 24.7 |
| Prefer not to answer               | 1  | 1.1  |
| Program approved and/or accredited |    |      |
| Yes                                | 86 | 92.5 |
| No                                 | 5  | 5.4  |
| Not sure                           | 2  | 2.2  |
| Training Model                     |    |      |
| Practitioner                       | 19 | 20.4 |
| Practitioner-Scholar               | 7  | 7.5  |
| Practitioner-Scientist             | 12 | 12.9 |
| Scholar-Practitioner               | 5  | 5.4  |
| Scientist-Practitioner             | 32 | 34.4 |
| Not sure                           | 17 | 18.3 |
| Other                              | 1  | 1.1  |
| Primary Theoretical Orientation    |    |      |
| Behavioral                         | 32 | 30.5 |
| Cognitive-Behavioral               | 6  | 5.7  |
| Cognitive                          | 0  | 0    |
| Eclectic                           | 11 | 10.5 |
| Eco-behavioral                     | 7  | 6.7  |
| Ecological                         | 3  | 2.9  |
| Developmental                      | 10 | 9.5  |
| Humanistic                         | 1  | 1.0  |
| Psychodynamic                      | 4  | 3.8  |
| Other                              | 2  | 1.9  |
| Not sure                           | 17 | 16.2 |
| Missing                            | 12 | 11.4 |

*Note.* Ninety-three out of 105 participants provided information regarding graduate training in school psychology.



Table 4.

*Item Completion by Cases with Items Missing Data on the Modified BSP Knowledge Test*

| ID Number | Total score<br>(40 items) | FB subscore<br>(16 items) | N subscore<br>(14 items) | C subscore<br>(10 items) |
|-----------|---------------------------|---------------------------|--------------------------|--------------------------|
| 27        | 24 (60%)                  | 10 (63%)                  | 7 (50%)                  | 7 (70%)                  |
| 33        | 37 (92.5%)                | 13 (81%)                  | -                        | -                        |
| 55        | 39 (97.5%)                | -                         | 13 (93%)                 | -                        |
| 56        | 38 (95%)                  | 15 (94%)                  | -                        | 9 (90%)                  |
| 82        | 38 (95%)                  | -                         | -                        | 8 (80%)                  |

*Note.* Five participants had missing data on the Modified BSP Knowledge Test. The abbreviations FB, N, and C represent function-based, neutral, and contraindicated subscores, respectively.

Table 5.

*Descriptive Statistics of Scores on the Modified BSP Knowledge Test*

| Score           | Mean % correct* | Number of items | M     | SD   | Range |
|-----------------|-----------------|-----------------|-------|------|-------|
| Function-Based  | 70.6            | 16              | 11.30 | 2.35 | 4-15  |
| Neutral         | 69.2            | 14              | 9.70  | 2.97 | 2-14  |
| Contraindicated | 77.9            | 10              | 7.79  | 2.05 | 1-10  |
| Total           | 72.0            | 40              | 28.80 | 4.60 | 19-38 |

*Note.*  $N = 105$ . A score of 80% correct and above is considered proficient on the Modified BSP Knowledge Test.

Table 6.

*Descriptive Statistics of Total Score on the Modified BSP Knowledge Test by Highest Degree Earned*

| Degree     | <i>N</i> | <i>Mean % correct*</i> | <i>M</i> | <i>SD</i> | <i>Range</i> |
|------------|----------|------------------------|----------|-----------|--------------|
| Masters    | 30       | 69.00                  | 27.60    | 5.16      | 19-36        |
| Specialist | 47       | 74.33                  | 29.73    | 4.59      | 20-38        |
| Doctorate  | 28       | 71.78                  | 28.71    | 3.76      | 22-36        |
| Total      | 105      | 72.00                  | 28.80    | 4.60      | 19-38        |

*Note.* Highest degree was collapsed into three levels: (a) Masters, (b) Specialist, and (c) Doctorate. \*A score of 80% correct and above is considered proficient on the Modified BSP Knowledge Test.

Table 7.

*Analysis of Variance Summary for the Effect of Highest Degree Earned on Modified BSP*

*Knowledge Test Total Score*

| Source | <i>df</i> | <i>SS</i> | <i>MS</i> | <i>F</i> | <i>p</i> |
|--------|-----------|-----------|-----------|----------|----------|
| Degree | 2         | 74.78     | 37.39     | 1.80     | .171     |
| Error  | 102       | 2122.02   | 20.80     |          |          |
| Total  | 104       | 2196.80   |           |          |          |

*Note.* Highest degree was collapsed into three levels: (a) Masters, (b) Specialist, and (c) Doctorate.

Table 8.

*Descriptive Statistics of Amount and Self-Reported Effectiveness of Training, Years Employed, and Total Score for Participants who Received Training*

| Variable                                | Measure       | <i>M</i> | <i>SD</i> | Range |
|---|---------------|----------|-----------|-------|
| Amount of post-graduate training        | hours         | 16.52    | 12.20     | 2-45  |
| Self-reported effectiveness of training | %             | 83.52    | 22.37     | 9-100 |
| Years employed                          | years         | 11.20    | 8.97      | 2-34  |
| Total score Modified BSP Knowledge Test | points (0-40) | 29.28    | 4.96      | 19-38 |

*Note.* Twenty-five participants received training within the last two consecutive years. The distributions of amount and self-reported effectiveness of training are both unimodal and mesokurtic with no severe skew. The distribution of years employed is unimodal with some positive skew.

Table 9.

*Hierarchical Regression Analysis Predicting Total Score with Amount and Effectiveness of Training and their Interaction, Controlling for Years Employed (n = 25)*

| Predictor                | Model 1    |             |         | Model 2    |             |         | Model 3    |             |         |
|--------------------------|------------|-------------|---------|------------|-------------|---------|------------|-------------|---------|
|                          | <i>B</i>   | <i>SE B</i> | $\beta$ | <i>B</i>   | <i>SE B</i> | $\beta$ | <i>B</i>   | <i>SE B</i> | $\beta$ |
| Intercept                | 30.63<br>9 | 1.602       |         | 28.55<br>6 | 4.672       |         | 23.03<br>3 | 11.08<br>6  |         |
| Years                    | -.121      | .113        | -.219   | -.107      | .120        | -.194   | -.115      | .123        | -.209   |
| Hours                    |            |             |         | .036       | .088        | .089    | .419       | .700        | 1.030   |
| Effectiveness            |            |             |         | .016       | .048        | .071    | .078       | .124        | .354    |
| Hours x<br>Effectiveness |            |             |         |            |             |         | -.004      | .008        | -1.031  |

*Note.* Model 1 controlled for years employed as a school psychologist ( $p = .292$ ), in Model 2 amount and effectiveness of training entered simultaneously ( $p = .709$ ), and Model 3 is the interaction of amount (hours) and self-reported effectiveness of training ( $p = .797$ ).

Table 10.

*Descriptive Statistics of Amount and Self-Reported Effectiveness of Training and Years Employed for All Participants*

| Variable                                | Measure | N    | M     | SD    | Range |
|---|---------|------|-------|-------|-------|
| Amount of post-graduate training        |         |      |       |       |       |
| No training                             | hours   | 75   |       |       |       |
| Received training                       | hours   | 25*  | 16.52 | 12.20 | 2-45  |
| Total                                   | hours   | 100* | 4.13  | 9.37  | 0-45  |
| Self-reported effectiveness of training |         |      |       |       |       |
| No training                             | %       | 75   |       |       |       |
| Received training                       | %       | 30   | 81.73 | 21.89 | 9-100 |
| Total                                   | %       | 105  | 23.35 | 38.86 | 0-100 |
| Years employed                          |         |      |       |       |       |
| No training                             | years   | 73   | 11.67 | 10.02 | 1-40  |
| Received training                       | years   | 30   | 11.37 | 8.51  | 2-34  |
| Total                                   | years   | 103  | 11.58 | 9.56  | 1-40  |

*Note.* N = 105. The overall distribution was positively skewed, with 75 participants (76%) who indicated they did not receive training.

\*Five of the 25 participants who indicated receiving training in the last two consecutive years did not indicate the number of hours of training received.

## APPENDIX B

### SURVEY INSTRUMENT

#### Part I.

1.) Is your **PRIMARY** employment as a part-time or full-time school psychologist in a public school serving children in Kindergarten through 12<sup>th</sup> grade (e.g., elementary school, middle school, elementary and middle, high school),

- Yes → go to item 2 (complete items 2-13)
- No → complete items 1(a-b)
- I prefer to not answer this question → complete items 1(a-b)

1 (a) What is your primary role? (Please select one).

- administrative position (for example, special education director)
- clinician
- consultant
- graduate student - not in school psychology
- please specify: \_\_\_\_\_
- licensed professional (for example, speech pathologist)
- school psychology graduate student
- school psychology intern
- teacher
- teacher/educational assistant
- other
- please specify: \_\_\_\_\_
- I prefer to not answer this question

1 (b) What is your primary work setting? (Please select one).

- hospital
- mental health center
- private practice
- primary or secondary school setting
- university or college
- other
  - please specify: \_\_\_\_\_
- I prefer to not answer this question

2.) What is your highest degree earned in **SCHOOL PSYCHOLOGY**? (Please select only one).

- Ed.D. or D.Ed.
- Master's Degree
- Ph.D.
- Psy.D.
- Specialist Degree



- other
  - please specify: \_\_\_\_\_
- None
- I prefer to not answer this question

3.) What is your highest degree earned **NOT** in school psychology? (Please select only one).

- Associate's Degree
- Bachelor's Degree
- Ed.D. / D.Ed.
- High School/GED equivalent
- Master's Degree
- Ph.D.
- Psy.D.
- Specialist Degree
- other
  - please specify: \_\_\_\_\_
- I prefer to not answer this question

4.) Did you complete an internship as part of your highest degree?

- Yes
- No
- I prefer to not answer this question

5.) When did you earn your highest degree? (empty text box)

6.) Do you have a degree in school psychology or a combined school/clinical psychology degree?

- Yes → complete training items 7-11
- No → go to item 12
- I prefer to not answer this question → go to item 12

7.) Are you certified/licensed in **school psychology**?

- Yes → answer question 7(a)
- No → go to item 8
- I prefer to not answer this question → go to item 8

7 (a) What are/is your certification(s)/license(s) in **school psychology**? (Select all that apply).

- Licensed or Certified by State Education Agency as School Psychologist
- Licensed or Certified by State Education Agency as Psychometrist, or similar title
- Licensed School Psychologist (non-doctoral; State Board of Psychology)
- Nationally Certified School Psychologist (NCSP)
- Other

- please specify: \_\_\_\_\_
- I prefer to not answer this question

8.) Do you hold any other certification(s)/license(s)?

- Yes → answer question 8(a)
- No → go to item 9
- I prefer to not answer this question → go to item 9

8 (a) What other certification(s)/license(s) do you hold? (Select all that apply).

- Board Certified Behavior Analyst (BCBA)
- Board Certified Behavior Analyst – Doctoral (BCBA-D)
- Licensed Psychological Associate or similar title (non-doctoral; State Board of Psychology)
- Licensed Psychologist (doctorate req'd; State Board of Psychology)
- Non-doctoral licensed mental health worker (State Board of Psychology)
- Other
  - please specify: \_\_\_\_\_
- I prefer to not answer this question

9.) Where did you complete your training program?

- Public University or College
- Private University or College
- Community College
- Online University or College
- I prefer to not answer this question

10.) Outside of your training in school psychology, have you received formal training in applied behavior analysis, behavior modification, or a similar area?

- Yes
- No
- I prefer to not answer this question

11.) ***During your graduate training in school psychology***, what was the training model of your graduate program? (Please select one).

- Practitioner
- Practitioner-Scholar
- Practitioner-Scientist
- Scholar-Practitioner
- Scientist-Practitioner
- Not sure
- Other
  - please specify: \_\_\_\_\_
- I prefer to not answer this question

12.) ***During your graduate training in school psychology***, what was the ***primary*** theoretical orientation of your training program? (Please select one).

- Behavioral
- Biological/Medical
- Developmental
- Eclectic
- Eco-behavioral
- Ecological
- Humanistic
- Psychodynamic
- Other
  - please specify: \_\_\_\_\_
- Not sure
- I prefer to not answer this question

13.) ***During your graduate training in school psychology***, was your graduate training program approved and/or certified by a professional organization?

- Yes → complete item 13(a)
- No → go to item 14
- Not sure → go to item 14
- I prefer not to answer this question → go to item 14

13(a) Which of the following organizations was your program accredited or approved by? (Select all that apply).

- American Psychological Association (APA)
- National Association of School Psychologists (NASP)
- Regionally accredited (e.g., state department of education)
- Not regionally or nationally accredited/approved
- Not sure
- I prefer to not answer this question

The next section will contain items related to function-based behavior support planning.

**Function-based behavior support planning** is the development of an individualized, multi-component plan that utilizes functional behavioral assessment (FBA) information gathered to develop strategies that addresses the function of the student’s behavior. The plan includes specific steps to prevent problem behavior, teach and reinforce alternate appropriate behavior, and respond to problem behavior in ways that minimize its reoccurrence and maximizes safety (Cooper, Heron, Heward, 2004; English, & Anderson, 2006; Hanley, Iwata, & McCord, 2003; Sugai, Lewis-Palmer, & Hagan-Burke, 2000).

Items 14-21. Please move the slide rule to indicate how prepared you felt *when you first completed your terminal degree* and how prepared you feel *at the present time* regarding the following skills related to **function-based behavior intervention planning**

|   | 0% prepared<br>prepared | 50% prepared | 100% | Prefer<br>not to<br>answer |
|---|-------------------------|--------------|------|----------------------------|
| 14.) How <b>prepared</b> to conduct functional behavior assessments did you feel when you <i>graduated with your terminal degree</i> ?                  |                         |              |      |                            |
| 15.) How <b>prepared</b> to conduct functional behavior assessments do you feel <i>at the present time</i> ?  |                         |              |      |                            |
| 16.) How <b>prepared</b> to interpret the results of functional behavior assessments did you feel when you <i>graduated with your terminal degree</i> ? |                         |              |      |                            |
| 17.) How <b>prepared</b> to interpret the results of functional behavior assessments do you feel <i>at the present time</i> ?                           |                         |              |      |                            |
| 18.) How <b>prepared</b> to identify function-based intervention strategies did you feel when you <i>graduated with your terminal degree</i> ?          |                         |              |      |                            |
| 19.) How <b>prepared</b> to identify function-based intervention strategies do you feel <i>at the present time</i> ?                                    |                         |              |      |                            |
| 20.) How <b>prepared</b> to develop a function-based Behavior Intervention Plan did you feel when you <i>graduated with your terminal degree</i> ?      |                         |              |      |                            |
| 21.) How <b>prepared</b> to develop a function-based Behavior Intervention Plan do you feel <i>at the present time</i> ?                                |                         |              |      |                            |

22.) Have you been employed as a part-time (0.74 FTE or below) or full-time (0.75 FTE or above) school psychologist in the public school system serving students in grades k through 12 **for the last two consecutive years?**

- Yes
- No
- I prefer not to answer this question

23.) **In the last two consecutive years**, have you received post-graduate training in function-based behavior support planning?

- Yes → complete items 23 (a-b) and 24-31
- No → skip to Part II.
- I prefer not to answer this question → skip to Part II.

23 (a) From which of the following sources have you received **post-graduate training in function-based behavior support planning** in the **previous two consecutive years?** (Select all that apply.)

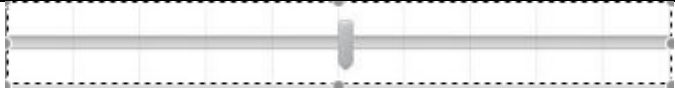

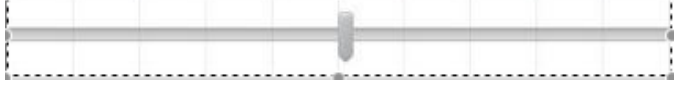

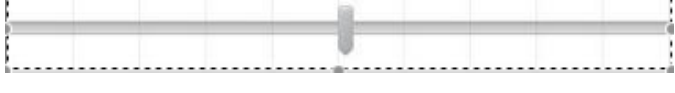


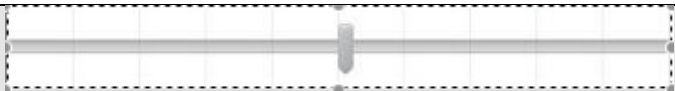
- Graduate level coursework after earning a terminal degree in school psychology
- Independent reading or other self-study
- In-service training provided by my school system.
- Professional presentation sponsored by school district
- Professional presentation sponsored by county or state organization (County, Intermediate Unit or Area Education Agency)
- Professional presentation not sponsored by a school district, county or state organization, and not part of a professional organization conference.
- Role-modeling or informal instruction or guidance from colleagues
- State or national conference provided by professional organization (National Association of School Psychologists, state school psychology association)
- Other
- please specify: \_\_\_\_\_
- I prefer to not answer this question

23 (b) **In the previous two consecutive years**, approximately how many hours of post-graduate training have you received in **function-based Behavior Support Planning?**

(empty text box)

- I prefer to not answer this question

Items 24-31. Please move the slide rule to indicate how effective you felt your training was *when you first completed your terminal degree* and how effective you feel your training has been *in the last two consecutive years* regarding the following skills related to **function-based behavior intervention planning**.

|  | 0% effective effective   | 50% effective | 100% | Prefer not to answer |
|--|--|---------------|------|----------------------|
| 24.) How <b>effective</b> did you feel your training was to conduct functional behavior assessments when you <i>graduated with your terminal degree</i> ?                  |    |               |      |                      |
| 25.) How <b>effective</b> do you feel your training has been to conduct functional behavior assessments <i>in the last two consecutive years</i> ?                         |    |               |      |                      |
| 26.) How <b>effective</b> did you feel your training was to interpret the results of functional behavior assessments when you <i>graduated with your terminal degree</i> ? |    |               |      |                      |
| 27.) How <b>effective</b> do you feel your training has been to interpret the results of functional behavior assessments <i>in the last two consecutive years</i> ?        |   |               |      |                      |
| 28.) How <b>effective</b> did you feel your training was to identify function-based intervention strategies when you <i>graduated with your terminal degree</i> ?          |  |               |      |                      |
| 29.) How <b>effective</b> do you feel your training has been to identify function-based intervention strategies <i>in the last two consecutive years</i> ?                 |  |               |      |                      |
| 30.) How <b>effective</b> did you feel your training was to develop a function-based Behavior Intervention Plan when you <i>graduated with your terminal degree</i> ?      |  |               |      |                      |
| 31.) How <b>effective</b> do you feel your training has been to develop a function-based Behavior Intervention Plan <i>in the last two consecutive years</i> ?             |  |               |      |                      |

## Part II.

The next section measures understanding of how to select intervention strategies that directly address the function of student problem behavior.

A series of five brief vignettes describing hypothetical student data will be provided accompanied by eight possible strategies per vignette. This section of the survey takes approximately 15 minutes to complete.

Items drawn from The BSP Knowledge Assessment, Strickland-Cohen, M. K. (2011). Educational and Community Supports, University of Oregon. Adapted from Benazzi, Nakayama, Sterling, Kidd, & Albin, (2003).

**Please read the hypothetical vignettes below. Based on the information provided, please indicate if you would rate the proposed interventions as a:**

**FB- Function-based intervention** = an intervention that directly addresses the function of the problem behavior and is expected to improve behavior

**N- Neutral intervention** = an intervention that might be effective or is a good behavior management practice, but is unrelated to the function of the problem behavior

**C- Contraindicated intervention** = an intervention that conflicts with the function of the problem behavior (i.e., provides access to maintaining consequence(s) following problem behavior) and may increase problem behavior

### Vignette 1

Jacob, a 5th grade student diagnosed with Asperger’s Syndrome, was referred to the behavior support team by his science teacher, Mr. Volding, for disruptive and disrespectful behavior. After interviewing Mr. Volding and conducting several observations of Jacob, the team determined that, particularly on days when an altercation with a peer has occurred prior to science class, when asked to do work with a partner or small group, Jacob makes inappropriate comments (e.g., “This is stupid!”), pushes materials off his desk, and refuses to do his work. Based on the data collected, the team agreed that the **function of Jacob’s behavior is to avoid working with peers.**

Based on the information provided in the vignette, the team is considering the following interventions. For each intervention, please indicate if you would rate it as a FB (function-based), N (neutral), or C (contraindicated) in the spaces provided.

| Vignette 1  | FB | N | C | Prefer not to answer |
|---|----|---|---|----------------------|
| 1. Teach student to appropriately request a break from working with his partner(s).   |    |   |   |                      |
| 2. When problem behavior occurs, allow student to work alone.   |    |   |   |                      |
| 3. Develop a behavior contract with the student specifying that if he works successfully with peers for a specified part of lab time, he can spend the remainder of class time working independently. |    |   |   |                      |
| 4. Review class rules about respectful interactions with peers at the beginning of class.   |    |   |   |                      |
| 5. When problem behavior occurs, send student to resource classroom to the complete activity.   |    |   |   |                      |
| 6. When presenting assignments on days when Jacob has had a previous peer altercation, provide a choice of working either individually or with a peer partner.  |    |   |   |                      |
| 7. Provide tokens that can be exchanged for items at the school store when student engages in appropriate peer interactions.  |    |   |   |                      |
| 8. Provide pull-out social skills training 2 times per week for 20 minutes.   |    |   |   |                      |



## Vignette 2

Jessica, a 7th grade student, was referred to the behavior support team for ‘disrespect’ by staff that monitors the halls during passing periods. After interviewing the staff and conducting several observations of Jessica’s behavior between classes, the team determined that when walking down the hallways between classes, Jessica shouts curse words and intentionally bumps into peers. This behavior is most likely to occur on the days that Jessica arrives late to school. Based on the data collected, the team agreed that **the function of Jessica’s behavior is to obtain adult attention.**

Based on the information provided in the vignette, the team is considering the following interventions. For each intervention, please indicate if you would rate it as a FB (function-based), N (neutral), or C (contraindicated) in the spaces provided.

| Vignette 2  | FB | N | C | Prefer not to answer |
|---|----|---|---|----------------------|
| <b>9.</b> When problem behavior occurs in the hallway, provide a verbal reprimand and have the student go back to her classroom and then walk down the hallway the ‘right way’.             |    |   |   |                      |
| <b>10.</b> Appropriate hallway behavior will be added to Jessica’s daily point card, and before classes begin she will ‘check-in’ briefly with each of her teachers regarding her behavior. |    |   |   |                      |
| <b>11.</b> On days that the student arrives late to school, she will be allowed to spend 5-10 minutes with the school counselor (a preferred adult) prior to going to class.                |    |   |   |                      |
| <b>12.</b> When problem behavior occurs, take the student aside to explain why her behavior is inappropriate and how she should behave in the hallway.                                      |    |   |   |                      |
| <b>13.</b> Teach student appropriate ways to gain attention from adults and peers in the hallway.   |    |   |   |                      |
| <b>14.</b> When problem behavior occurs, student will be immediately sent to the office to discuss the incident with the principal or counselor.  |    |   |   |                      |
| <b>15.</b> An announcement will be made over the PA system each morning reminding all students how to behave in the hallways.   |    |   |   |                      |
| <b>16.</b> Provide frequent descriptive adult praise for appropriate hallway behavior.  |    |   |   |                      |

### Vignette 3

Audrey, a 3rd grade student, was referred to the behavior support team by her teacher, Mrs. Briggs, for disruptive behavior. After interviewing Mrs. Briggs and conducting several observations of Audrey in the classroom, the team determined that when asked to do independent seat work during math instruction, Audrey cries and tears up her papers. Based on the data collected, the team agreed that **the function of Audrey’s behavior is to escape difficult academic tasks.**

Based on the information provided in the vignette, the team is considering the following interventions. For each intervention, please indicate if you would rate it as a FB (function-based), N (neutral), or C (contraindicated) in the spaces provided.

| Vignette 3   | FB | N | C | Prefer not to answer |
|--|----|---|---|----------------------|
| <b>17.</b> The school counselor will provide two 15-minute anger-management sessions per week for the remainder of the term.   |    |   |   |                      |
| <b>18.</b> Review class rules about working respectfully and quietly before independent seatwork.  |    |   |   |                      |
| <b>19.</b> When problem behavior occurs, the student will be sent to the counselor’s office to practice self-soothing behaviors.   |    |   |   |                      |
| <b>20.</b> Teach student to raise her hand and ask for help from the teacher when she has difficulty with academic tasks.  |    |   |   |                      |
| <b>21.</b> Modify math assignments to more closely match the student’s current skill level, and provide additional tutoring during free-study time.  |    |   |   |                      |
| <b>22.</b> When it appears that the student is becoming frustrated, send her to the hall to calm down.   |    |   |   |                      |
| <b>23.</b> When problem behavior occurs, do not allow the student to escape the task. Instead, prompt the student to ask appropriately for help or for a break from the task, and only provide help or a break after she asks appropriately. |    |   |   |                      |
| <b>24.</b> Provide frequent descriptive praise when the student engages in appropriate seatwork behavior.  |    |   |   |                      |

### Vignette 4

Bobby, a 2nd grade student who has been diagnosed with a learning disability, was referred to the behavior support team by his language arts teacher, Mr. Slade, for disruptive behavior. After interviewing Mr. Slade and conducting several observations of Bobby in the classroom, the team determined that during independent seatwork, Bobby often talks out, makes inappropriate noises, and makes faces at peers. Mr. Slade has changed the seating chart several times, but this strategy has not been effective. Based on the data collected, the team agreed that **the function of Bobby’s behavior is to obtain attention from peers.**

Based on the information provided in the vignette, the team is considering the following interventions. For each intervention, please indicate if you would rate it as a FB (function-based), N (neutral), or C (contraindicated) in the spaces provided.

| Vignette   | FB | N | C | Prefer not to answer |
|--|----|---|---|----------------------|
| <b>25.</b> Minimize teacher attention for engaging in challenging behavior and redirect the student by asking him a question related to the lesson.  |    |   |   |                      |
| <b>26.</b> Praise the student frequently for “sitting quietly” during independent seatwork.  |    |   |   |                      |
| <b>27.</b> Teach other students to ignore the problem behavior.  |    |   |   |                      |
| <b>28.</b> When problem behavior occurs, ask the student to partner with an appropriate ‘peer model’ for the activity.   |    |   |   |                      |
| <b>29.</b> Remind the student of classroom expectations at the beginning of independent work times.  |    |   |   |                      |
| <b>30.</b> Explain to the student that if he completes his assignment without engaging in inappropriate behavior, he can sit at the back table with a peer and play a brief game or talk quietly for 10 minutes. |    |   |   |                      |
| <b>31.</b> Teach other students that when Bobby is disruptive they should remind him of the classroom rules regarding how to behave during independent work times.   |    |   |   |                      |
| <b>32.</b> Give the student the task of passing out the assignment to his peers and picking the papers up at the end of independent work time.   |    |   |   |                      |

### Vignette 5

Billy, a 5th grade student, was referred to the behavior support team by his teacher, Mrs. Ables, for bullying. After interviewing Mrs. Ables and conducting several observations of Billy, the team determined that on the playground during recess and when waiting in the lunch line in the cafeteria, Billy pushes, steals from, and is verbally aggressive towards his peers. Based on the data collected, the team agreed that **the function of Billy’s behavior is to gain access to preferred items (for example, money and snack items) from peers.**

Based on the information provided in the vignette, the team is considering the following interventions. For each intervention, please indicate if you would rate it as a FB (function-based), N (neutral), or C (contraindicated) in the spaces provided.

| Vignette 5  | FB | N | C | Prefer not to answer |
|---|----|---|---|----------------------|
| <b>33.</b> Any form of bullying behavior will result in a trip to the principal’s office and a call home to the student’s parents.            |    |   |   |                      |
| <b>34.</b> Teach peers to immediately walk away and tell a trusted adult when the student begins to engage in bullying behavior.              |    |   |   |                      |
| <b>35.</b> Provide pull-out social skills training 3 times per week for 20 minutes.   |    |   |   |                      |
| <b>36.</b> Reward appropriate interactions on the playground and in the cafeteria with tokens that can be traded for preferred food items.    |    |   |   |                      |
| <b>37.</b> When problem behavior occurs, redirect by allowing the student to choose between snack items and praise appropriate choice-making. |    |   |   |                      |
| <b>38.</b> Remind all students of school-wide expectations before recess and lunch.   |    |   |   |                      |
| <b>39.</b> When problem behavior occurs, the student will apologize to his peer(s) and give back any items that he has taken.                 |    |   |   |                      |
| <b>40.</b> Additional staff will be assigned to monitor the cafeteria and playground during lunch and recess.                                 |    |   |   |                      |

### Part III.

This next section contains questions regarding demographic characteristics. This information will be used to describe the sample of this study. It will take approximately 1-3 minutes to complete.

- 1.) Are you male or female? (Please select one).
  - Female
  - Male
  - I prefer not to answer this question
  
- 2.) Which of the following best describes your race?
  - American Indian or Alaska Native
  - Asian American or Pacific Islander
  - Black or African American
  - Caucasian
  - Hispanic
  - Other
    - please specify: \_\_\_\_\_
  - I prefer not to answer this question
  
- 3.) Please select the state in which you are employed. (drop down menu of all states)
  - I prefer not to answer this question
  
- 4.) Do you work as a school psychologist in a school setting?
  - Yes, full time (.75 and above) → Complete items 5-7
  - Yes, part time (.74 and below) → Complete items 5-7
  - No → Survey completed
  - I prefer to not answer this question
  
- 5.) Which grade levels do you work with? (Select all that apply).  
(drop down menu listing each grade level separately, pre K – 12)
  
- 6.) What is the approximate percentage of students in your school setting(s) that are eligible for a free or reduced-price lunch?
  - drop down menu (0-100)
  - Not sure
  - I prefer not to answer this question
  
- 7.) How many years have you worked as a part-time or full-time school psychologist (post-graduation)? (drop down menu of years 0-50)
  - I prefer not to answer this question

## APPENDIX C

### RECRUITMENT MATERIALS

“Function-Based Behavior Support Planning Competencies:  
A National Survey of School Psychologists”

## Invitation to Participate In Student Research



You are being asked to be in a dissertation research study of  
function-based behavior support competencies of school psychologists

You were selected as a possible participant because you are a member of the  
National Association of School Psychologists, and a practicing school  
psychologist in a K-12 setting in the United States.

The NASP Research Committee has reviewed this study and granted the researcher(s)  
permission to recruit NASP members as research participants.

Participants will be asked to complete an online, password-protected survey

There will be an optional drawing to receive one of four \$25 gift cards

You will receive an official invitation within approximately one week

**Thank you for your consideration!**

UNIVERSITY  
OF OREGON

Questions can be directed to:

Nicole Kaye, BA  
Principal Investigator  
Doctoral Candidate  
University of Oregon  
(847) 845-2077

S. Andrew Garbacz, PhD  
Dissertation Chair  
Assistant Professor  
University of Oregon  
(541) 346-2820

Nicole Kaye

618 Second Ave.  
Des Plaines, IL 60016

[Recipient]

Address Line 1  
Address Line 2  
Address Line 3  
Address Line 4

“Function-Based Behavior Support Planning Competencies:  
A National Survey of School Psychologists”

## Invitation to Participate In Student Research

You are being asked to be in a dissertation research study of  
function-based behavior support competencies of school psychologists

You were selected as a possible participant because you are a member of the  
National Association of School Psychologists, and a practicing school  
psychologist in a K-12 setting in the United States.

The NASP Research Committee has reviewed this study and granted the researcher(s)  
permission to recruit NASP members as research participants.

There will be an optional drawing to receive one of four \$25 gift cards

**Please complete the online, password-protected survey by entering the following  
website address and password:**

**Web address:** [https://oregon.qualtrics.com/SE/?SID=SV\\_8wU8QGwG362apAV](https://oregon.qualtrics.com/SE/?SID=SV_8wU8QGwG362apAV)

**Password:** Pdr485LL2



**THANK YOU FOR YOUR TIME!**



UNIVERSITY  
OF OREGON

Questions can be directed to:

Nicole Kaye, BA  
Principal Investigator  
Doctoral Candidate  
University of Oregon  
(847) 845-2077

S. Andrew Garbacz, PhD  
Dissertation Chair  
Assistant Professor  
University of Oregon  
(541) 346-2820

Nicole Kaye

618 Second Ave.  
Des Plaines, IL 60016

[Recipient]

Address Line 1  
Address Line 2  
Address Line 3  
Address Line 4

“Function-Based Behavior Support Planning Competencies:  
A National Survey of School Psychologists”

## Reminder to Participate In Student Research

You are being asked to be in a dissertation research study of the  
function-based behavior support competencies of school psychologists

The NASP Research Committee has reviewed this study and granted the  
researcher(s) permission to recruit NASP members as research participants.

Participants are asked to complete an online, password-protected survey

You have received an official invitation, web-link and password.

Web address:

[https://oregon.qualtrics.com/SE/?SID=SV\\_8wU8QGwG362apAV](https://oregon.qualtrics.com/SE/?SID=SV_8wU8QGwG362apAV)

Password: Pdr485LL2



If you have already completed the online survey –  
**THANK YOU FOR YOUR TIME!**

Nicole Kaye

618 Second Ave.  
Des Plaines, IL 60016



UNIVERSITY  
OF OREGON

Questions can be directed to:

Nicole Kaye, BA  
Principal Investigator  
Doctoral Candidate  
University of Oregon  
(847) 845-2077

S. Andrew Garbacz, PhD  
Dissertation Chair  
Assistant Professor  
University of Oregon  
(541) 346-2820

[Recipient]

Address Line 1  
Address Line 2  
Address Line 3  
Address Line 4



## APPENDIX D

### INFORMED CONSENT DOCUMENT

**University of Oregon, Department of Special Education and Clinical Sciences**  
**Informed Consent for Participation as a Participant in:**  
***Function-Based Behavior Support Planning Competencies:***  
***A National Survey of School Psychologists***  
**Principal Investigator: Nicole Kaye**

#### **Introduction**

You are being asked to be in a research study about competencies in function-based behavior support planning of school psychologists. You were selected as a possible participant because you are a member of the National Association of School Psychologists, and a practicing school psychologist in a K-12 setting in the United States. We ask that you read this form and ask any questions that you may have before agreeing to be in the study.

- Your participation is voluntary. If you decide to participate now, you may withdraw later. If you choose not to participate, it will not affect your current or future relations with the University of Oregon. If you choose to end participation before completing the survey, you will not be able to enter the drawing. This study has no association with the National Association of School Psychologists.
- As this is a research study, we will write the findings for publication to contribute to our understanding of school psychologists' function-based behavior support planning competencies. However, in any publication or presentation your identity will not be known.
- Your identity will not be linked with your survey responses
- If you choose to enter your name and postal mailing address for the drawing, your identifying information will not be linked with your survey responses.
- Minimal risks are anticipated. One risk is that participants may feel anxiety about their performance on the knowledge test portion of the survey. If you have concerns about your behavior support planning competencies, it may be helpful for you to seek out professional development opportunities through the National Association of School Psychologists or your local school district.
- Another risk is the possibility that confidentiality may be breached.
- Research records will be kept in a locked file and electronic information will be encrypted, however, please note that the Institutional Review Board and internal University of Oregon auditors may review the research records.
- If you agree to be in this study, we would ask you to do the following things: enter the webpage with the online survey instrument using the provided web address and sign in with the provided password. Next, respond to each survey item (you may decline to answer any question). The survey should take approximately 30 minutes to complete. Upon completion you have the option to enter your name and mailing address to be entered into a drawing for a \$25 gift card.

**Contacts and Questions:**

The researchers conducting this study are Nicole Kaye (doctoral student) and S. Andrew Garbacz, PhD (dissertation chair). For questions or more information concerning this research you may contact Ms. Kaye at (847) 845-2077 and/or Dr. Garbacz at (541) 346-2820. The Office of Research Compliance at the University of Oregon may be contacted at (541) 346-2510 or [ResearchCompliance@uoregon.edu](mailto:ResearchCompliance@uoregon.edu)

You may print a copy of this statement for your records.

**Statement of Consent:**

By checking this box, I indicate that I have read (or have had read to me) the contents of this consent form and have been encouraged to ask questions. I have received answers to my questions, as appropriate. I freely give my consent to participate in this study.

## APPENDIX E

### DATA COLLECTION TIMELINE

*Timeline outlining major data collection tasks*

| <i>Date</i>           | <i>Task</i>   |
|-----------------------|---|
| 06/11/2013            | Proposal approved                                       |
| 10/25/2013            | IRB approval  |
| 12/01/2013            | Application deadline for NASP mailing list approval     |
| 1/27/2014             | NASP approval   |
| 1/31/2014 – 4/18/2014 | IRB Amendment cycle                                     |
| 4/24/2014             | Mailing list error screening and preparation of mailers |
| 5/07/2014             | Pre-notification mailing and survey opened              |
| 5/14/2014             | Initial mailing   |
| 5/21/2014             | Follow-up mailing                                       |
| 6/30/2014             | Survey closed   |

## APPENDIX F

### POST-HOC POWER ANALYSES

Figure 3. Post-hoc Analysis – Research Question 2

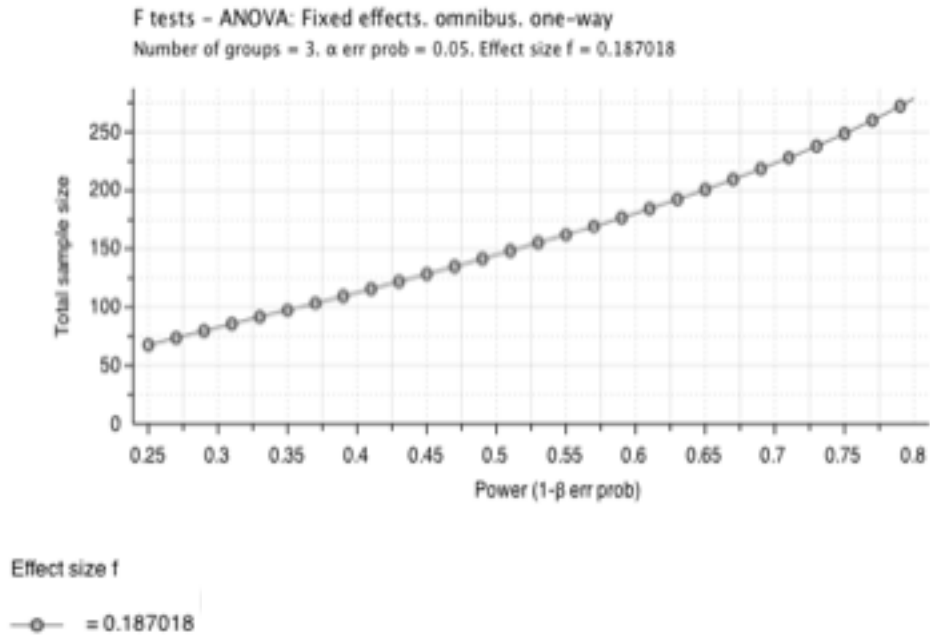
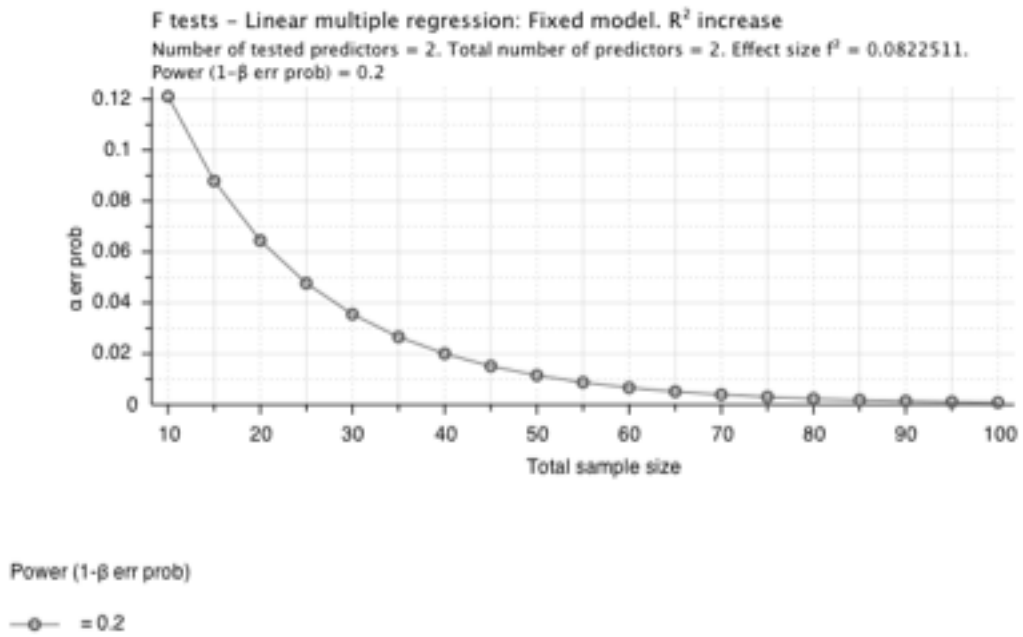


Figure 4. Post-hoc Power Analysis – Research Question 3



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