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Special Education Teachers' Perspectives On The Implementation of Functional Behavior Assessment in Schools

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Virginia Commonwealth University

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SPECIAL EDUCATION TEACHERS’ PERSPECTIVES ON THE IMPLEMENTATION OF FUNCTIONAL BEHAVIOR ASSESSMENT IN SCHOOLS

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

by

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ABSTRACT

SPECIAL EDUCATION TEACHERS’ PERSPECTIVES ON THE IMPLEMENTATION OF FUNCTIONAL BEHAVIOR ASSESSMENT IN SCHOOLS

By Joy Nichole Engstrom, Ph.D.

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy at Virginia Commonwealth University.

Virginia Commonwealth University, 2013

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School of Education

The presence of challenging and violent behaviors that pose risks to the overall safety and the educational learning experience in the public education setting have been on the rise in recent years. Traditional reactive, coercive, and punitive measures to address these behaviors have been futile. Congress responded to the national increase in violent behaviors by implementing several acts, including zero tolerance policies, in an effort to diminish the rise in violent behaviors. Of significance to this study was the inclusion of Functional Behavior Assessment in the reauthorization of the Individuals with Disabilities Education Act in 1997. Unfortunately, FBA has the least legal grounding of all the disciplinary provisions of IDEA and has been questioned by experts in the field if sufficient empirical support exists for the generalization of the technology to all students and whether or not school personnel have the skills required to
conduct FBA with integrity (Drasgow, Yell, Bradley, & Shriner 1999; Quinn, 2000; Scott et al., 2005; Skiba, 2002).

The purpose of this research study was to obtain and analyze information regarding the perceptions of special education teachers in the Commonwealth of Virginia on the use of Functional Behavior Assessment with students with high incidence disabilities in public schools. A nonexperimental survey design using an online self-report survey was conducted with special education teachers in the eight superintendent regions in the Commonwealth of Virginia. The study examined the behaviors that most frequently prompt a FBA, if a relationship exists between the type and frequency of training and the perceived effectiveness of FBA, the relationship between teacher attributes of beliefs and self-efficacy and the overall perceived effectiveness of FBA, and how teachers perceive the overall FBA/BIP process in public schools. The survey was distributed electronically to special education teachers through the office of the special education director in each of the 132 school divisions in Virginia. A total of 373 special education teachers responded to the survey. Respondents perceive the extent to which FBA contributes to the effectiveness of interventions that reduce challenging behaviors of students and the effectiveness of current FBA methods in increasing positive replacement behaviors and improving learning/academic achievement in public schools moderately effective. Congruent with the literature, special education teachers reported that chronic problem behaviors and physically aggressive behaviors were most likely to prompt an FBA. Respondents indicated their knowledge base, training experiences, and background in FBA. Overall, the majority of special education teachers reported that the training that they have received in FBA was moderately to very effective. Respondents indicated that further training in all areas of FBA was needed using a dynamic team based process with post training support. The most frequently
reported area of FBA that requires more training was developing function-based interventions while the least reported area of need was developing hypotheses about the functions of the behavior. Teacher beliefs and self-efficacy were examined to determine if these attributes predict a special educator’s perceived effectiveness of FBA. High levels of teacher self-efficacy were associated with increased views of perceived effectiveness of FBA in public schools. Two belief items were found to correlate with the perceived effectiveness of FBA.

The results of this study have important implications for personnel development and training for future and current special educators as well as information that can be applied to the exploration of a standardized process for conducting FBA in public schools in Virginia.
CHAPTER 1. INTRODUCTION

Statement of the Problem

The increasing episodes of challenging and violent behavior in schools over the past decade poses a risk to the overall safety of the school and educational learning experience for all children, with and without disabilities. Reactive, coercive, and punitive measures have traditionally been used to address these challenging and violent behaviors (Gable, Hendrickson, & Van Acker, 2001). The war on drugs movement of the 1980s led to the adoption of “no nonsense” zero tolerance policies in the early 1990s bolstering rate of suspension and expulsion for a broad range of behaviors (Skiba, 2004). The failure of zero tolerance policies and punitive measures to produce sustainable behavioral change in students led to the most sweeping changes to special education law since the passing of Public Law 94-142 in 1975.

In 1997, Congress addressed the rise of challenging and violent behaviors in public schools by including the practice of Functional Behavior Assessment (FBA) and the recommendation for positive behavior interventions in the reauthorization of the Individuals with Disabilities Education Act (IDEA, 1997) (Dukes, Rosenberg, & Brady, 2008). The amendments were lacking in several areas. First, the amendments do not specifically define the procedures or technologies to be used by school personnel when conducting a FBA (Scott, Anderson, & Spaulding, 2008). In addition to the absence of specific regulations and guidelines for conducting FBA, the research base to support the use of FBA in applied settings, such as
schools, is significantly limited in scope and lacks empirical consensus (Ervin, Radford, & Bertsch, 2001; Quinn et al., 2001).

The 1997 amendments resulted in nothing short of a windfall of system and procedural changes in school divisions nationwide. The absence of clearly defined procedures and technologies resulted in the rapid adoption and implementation of FBA and positive behavior support procedures without exploring the barriers and the impact of these barriers on the effective implementation of the intervention. The overall utility of FBA in schools as used by school personnel is unclear; therefore, this study will seek to explore the variables that impact implementation of FBA and examine the perception of FBA by school personnel in Virginia.

**Rationale for Study of the Problem**

While FBA is a research-supported practice in clinical settings with severe populations (Carr et al., 1999), the scant amount of available research has concluded that “policy has exceeded the research base” regarding the practice of FBA in applied settings and the recent inclusion and reauthorization of the discipline amendments of IDEA (Conroy, Clark, Fox, & Gable, 2000, p. 169; Dukes et al., 2008, p. 164; Gresham, 2003, p. 283). Current FBA practices within and across school divisions nationwide vary significantly ranging from the composition of the FBA team, training of school personnel charged with conducting and analyzing FBA, and technologies used to deduct valid and reliable hypothesis of behaviors that lead to interventions based on the function of behavior. The differences among school divisions listed above are but only a few of the global concerns regarding the practice of FBA in schools.

Schools are renowned for their use of punitive measures for the demonstration of challenging and violent behaviors (Gable et al., 2001). Prior to the inclusion of FBA in special education law in 1997, a multitude of other acts of Congress have been presented in efforts to
curtail school violence and disruption. These zero tolerance policies present schools with methods to address all challenging behaviors the same regardless of severity or intent, sending the message that no behaviors outside of the accepted norm will be tolerated. However, little evidence exists to support these policies. While there is limited evidence to support the inclusion of FBA in applied settings, evidence does exist to support the use of FBA as a tool that effectively assesses challenging behavior. The current challenge among researchers and scholars is to determine the technologies and processes that are most applicable to school settings. FBA is an in-depth process that is time and resource intensive which does not correspond well with the current status of educational focus and compounding responsibilities of reportedly already overtaxed teachers.

Special education teachers are described as the person typically charged with leading the FBA process. While research studies have contributed to the knowledge base of FBA in schools, the vast majority of these studies are researcher controlled with little involvement of school personnel (Ervin et al., 2001). The social validity of FBA procedures has been largely ignored with little information about teacher perception available (Ervin et al., 2001). It is therefore undeterminable whether school personnel, especially special education teachers, are equipped with the skills to conduct FBA, knowledge of behavioral principles, or if they are willing to engage in the process with efficacy. Special education teacher perspectives of the current FBA processes used in schools, an understanding of the behaviors that are most challenging and most likely to lead to the initiation of a FBA, and teacher attributes that potentially influence the willingness of a teacher to engage in the FBA process and implement behavior intervention plans (BIPs) with efficacy are components necessary to understand FBA in public schools and develop methods and technologies that are palatable for use by this population.
Statement of Purpose

This study will focus on examining the current FBA practices from the perspective of special education personnel who teach students with high incidence disabilities in Virginia public schools. The purposes of the study are to critically examine (a) FBA practices from the perspective of special education teachers; (b) the variables in which teachers conduct FBAs and implement BIPs; and (c) teacher attributes, specifically teacher beliefs and teacher efficacy. The author developed the following research questions:

1. How do special education teachers perceive the effectiveness of the FBA and BIP processes and methods in terms of reducing challenging behavior and increasing positive replacement behaviors of students with high incidence disabilities?
2. What behaviors most frequently prompt a FBA to be conducted?
   a. Is there a relationship between the behaviors that prompt a FBA and the region and grade level taught?
3. What is the relationship between FBA procedures required by the school division and the actual procedures that are used by special education teachers?
4. What are the approaches used to train special education teachers in Virginia to conduct FBA and develop BIP?
   a. What are the training formats and methods used to train special education teachers to conduct FBAs and develop BIPs?
   b. What is the perceived effectiveness of the training that is received in FBA and BIP?
   c. In what areas of FBA are special education teachers trained?
5. What are the development and implementation practices for preparing a BIP used by special education teachers?

6. Do special education teacher views of the perceived effectiveness of FBA differ based on teacher beliefs and self-efficacy?

**Definition of Terms**

The following section contains key terms and their definitions applied to this study. The terms include positive behavior supports (PBS), school wide positive behavior supports (SWPBS), functional behavior assessment (FBA), behavior intervention plan (BIP), implementation science, applied behavior analysis, treatment integrity, self-efficacy, and special education teacher. The definitions are provided for these terms and are used in subsequent chapters.

*Applied behavior analysis (ABA).* Applied behavior analysis is the study of socially significant behaviors in applied settings (Baer, Wolf, & Risley, 1968).

*Behavior intervention plan (BIP).* A behavior intervention plan is a plan that includes positive strategies, program modifications, and supplementary aids and supports that address a student's disruptive behaviors and allows the child to be educated in the least restrictive environment (LRE) (LD Online Glossary, 2010).

*Functional behavior assessment (FBA).* For the purposes of this study, functional behavior assessment is an empirically validated process that is used in the identification of variables that reliably predict and maintain challenging behaviors of an individual (Scott et al., 2008; Scott, McIntyre, Liaupsin, Nelson, & Conroy, 2004; Scott et al., 2005; Stichter & Conroy, 2005)
Implementation science. Implementation science explores barriers to effectiveness and their impact on the delivery of effective evidence-based programs in the real world (Kelly, 2012).

Positive behavior supports (PBS). For the purpose of this study, positive behavior support is a problem-solving approach integrating valued outcomes, behavioral and biomedical sciences, empirically validated procedures, and systems change to understand reasons for challenging behavior, design comprehensive intervention plans, and enhance the overall quality of life (Bambara, 2005; Sugai & Horner, 2006).

School wide positive behavior supports (SWPBS). School wide positive behavior support is an approach designed to improve the adoption, accurate implementation, and sustained use of evidence-based practices related to behavior and classroom management and school discipline systems (Sugai & Horner, 2009, p. 309).

Self-efficacy. Self-efficacy is defined as one’s general beliefs about his or her own capacity to organize and execute the tasks required and influences behavior, affects goal setting, and affects the ability to persist in difficult tasks (Bandura, 1977, p.3; Pas, Bradshaw, Hershfeldt, & Leaf, 2010).

Special education teacher. A special education teacher in this study is defined as a person licensed in special education in Virginia.

Treatment integrity. Treatment integrity is defined as the extent to which an intervention is implemented as described and intended and behavior change is not due to extraneous variables unrelated to the intervention (Wood, Umbreit, Liaupsin, & Gresham, 2004).
Methodology

The study employed a nonexperimental survey design. In order to investigate the independent variables, a survey was conducted with special education teachers in Virginia. Participants were invited to complete a researcher designed Web-based survey entitled Functional Behavior Assessment and Behavior Intervention Plans: A Teacher Perspective. Demographic information, as well as questions related to FBA, teaming, training, teacher attributes, district practices, and overall comments were addressed by the survey. The validity of the survey instrument was enhanced through review by an advisory group of experts and a pilot study with special education teachers.

Data were analyzed using the Statistical Package for Social Sciences® (SPSS). Descriptive statistics, one sample $t$-test, chi square, and correlation statistics were used to analyze the data to determine if the findings were significant in relation to the research questions.

Summary

Schools are free operant settings in which a multitude of behaviors are demonstrated across and within settings serving a variety of functions for individual students. In an effort to provide school personnel with tools to address behaviors that are disruptive to the learning environment and to protect the right of students to a free and appropriate public education, Congress amended IDEA (1997) to include discipline provisions that require schools to complete FBA and develop intervention plans using recommended positive behavior supports. Unfortunately, Congress did not specify the procedures or technologies by which school personnel are to conduct such assessments. Additionally, researchers and experts have not reached a consensus regarding the procedures and technologies most suited for use in public schools that will achieve reliable and valid results. Understanding the perspective of school
personnel, specifically special education teachers’, regarding FBA and BIPs is essential to
determining the process and technologies that will increase the likelihood that teachers will
engage in the process and implement function based interventions with fidelity. The study
sought to gain the special education teacher perspective as well as address variables that
influence the willingness of special education teachers to actively participate in FBA.
CHAPTER 2. REVIEW OF THE LITERATURE

Introduction

This chapter summarizes the results of a critical review of the research literature that provides a conceptual framework and rationale for the current study. First, a thorough review identifies the key components of current conceptualizations of positive behavior supports (PBS) and school wide positive behavior supports (SWPBS). This discussion leads into a review of implementation science and legal and policy trends that have influenced the use of PBS components in school settings. To fully understand the relationship between implementation science and PBS with respect to FBA and behavior intervention plans (BIPs), the next section discusses the history, definitions, and components as well as the principles of FBA. This is followed by a detailed discussion of the relative influences of key variables such as significant problem behavior, methods and technology, training and implementation, procedural integrity and treatment fidelity, behavior intervention plans, teacher attributes and self-efficacy, and teacher perceptions on current FBA practices are presented. Five comprehensive reviews and two meta-analytic reviews of the current literature expand the knowledge base regarding the current status of FBA in applied settings. A summary that reviews issues and gaps, the need for future research, and the rationale for the study with the presentation of the research questions concludes the chapter.
Overview of Related Areas

Historical accounts of disciplinary actions used in public education systems document a reliance on negative, punitive sanctions and coercive measures to manage student behavior (Gable et al., 2001; Van Acker, Boreson, Gable, & Potterton, 2005). Since the emergence of positive behavior supports (PBS) in the middle to late 1980s, schools have begun a policy and programmatic shift from a punishment paradigm to a more proactive approach to eliminating and managing challenging behavior. However, while evidence-based strategies have been empirically validated in the literature, the wide scale implementation of these practices in applied settings requires additional study. Further exploration of these implementation barriers and the impact of these variables on the effective delivery of evidence-based programs in applied settings are essential.

This exploration of barriers that hamper the use of evidence-based practices in actual settings is called implementation science. Implementation science is focused on exploring and explaining what makes interventions work in real world contexts (Kelly, 2012). The following sections will provide a brief description of PBS, implementation science, legal and policy trends, functional behavior assessment, and a review of variable influence on FBA practices.

Positive Behavior Supports

Positive behavior support is an approach to intervention based on principles of learning theory, the science of implementation and systems change, and data-based accountability (Carr et al., 2002; Dunlap, 2006; Dunlap, Strain, & Fox, 2012). PBS has been described as a problem-solving approach integrating valued outcomes, behavioral and biomedical sciences, empirically validated procedures, and systems change to understand reasons for challenging behavior, design comprehensive intervention plans, and enhance the overall quality of life (Bambara, 2005; Sugai
PBS has also been described as an “application of a behaviorally based systems approach to enhancing the capacity of schools, families, and communities to design effective environments that improve the fit or link between research validated practices and the environments in which teaching and learning occur” (Sugai et al., 2000, p.10). PBS comprises proactive, wide-ranging systematic and individualized techniques and strategies that are likely to produce positive changes in behavior (Chitiyo & Wheeler, 2009).

As PBS has expanded from an individual to a school wide model, it has incorporated the use of a three-tier model of delivery that has been demonstrated to improve student behavior (Chorpita, 2008; Drake, Latimer, Leff, McHugo, & Burns, 2008; Solomon, Klein, Hintze, Cressey, & Peller, 2012). The first tier of PBS is the primary level of prevention that is applied to all students at the universal level. The second level focuses on group systems while the third tier of the intervention focus on individual student needs (Sugai, 2007). School wide positive behavior support (SWPBS) is associated with meaningful outcomes that include decreased rates of office referrals, detentions, suspensions, and increased instructional time (Bohanon et al., 2006; Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008; Lassen, Steele, & Sailor, 2006; Luiselli, Putnam, Handler, & Feinberg, 2005). Sugai and Horner (2009) state that “SWPBS is not a curriculum, intervention, or program rather it is an approach designed to improve the adoption, accurate implementation, and sustained use of evidence based practices related to behavior and classroom management and school discipline systems” (p. 309). Solomon et al. (2012) identify five common core components that serve as the foundation of SWPBS, beginning with behavioral theory and applied behavioral analysis with the use of positive reinforcement and functional behavior assessment. Other core components include a focus on prevention, an instructional focus, evidence-based behavioral practices, and a systems approach.
Despite the positive outcomes associated with SWPS, many schools continue to employ reactive discipline systems. Scott et al. (2005) and Van Acker et al. (2005) suggest that there is a general unfamiliarity with the use of positive approaches to intervention and a reluctance to employ these approaches to support behavior change in students. Crone and Horner (2001) established that public schools are generally hesitant to implement innovative, systems-wide prevention efforts. One reason for this reluctance may be in the complex nature of systemic change and the propensity to underestimate this complexity (Feuerborn & Chinn, 2012).

Recent research has revealed that teacher perceptions influence their support for and implementation of SWPBS (Kincaid, Childs, Blasé & Wallace, 2007; Lane et al., 2009; Lohrmann, Forman, Martin, & Palmieri, 2008). An examination of the factors that influence the application of positive intervention strategies is needed to determine not only the quality and value of an intervention but also gain an understanding of “how” to implement, improve, sustain, and scale up evidence-based practice into real world application (Blasé, Dyke, Fixsen & Bailey, 2012). This examination requires a review of a new area of scientific, academic, and practitioner interest focused on exploring and explaining what makes interventions work in real world contexts called implementation science (Kelly, 2012).

**Implementation Science**

Implementation science explores barriers to effectiveness and their impact on the delivery of effective evidence-based programs in the real world (Kelly, 2012). Various models of implementation science exist. However, this analysis will focus on the model described by Blasé et al. (2012) and Fixsen, Naoom, Blasé, Friedman, & Wallace (2005) which identifies four stages of implementation. The stages are exploration and adoption, installation, initial implementation, and full implementation (Fixsen et al., 2005). In addition to the stages of implementation, the
model identifies "implementation drivers" that constitute the infrastructure for implementation because they are the processes required to implement, sustain, and improve effective interventions (Blasé et al., 2012). Blasé et al. (2012) identify the implementation drivers as competency drivers, organization drivers, and leadership:

Collectively, the implementation drivers ensure the staff and teachers have the skills necessary to implement well, that policies and procedures are developed at multiple levels to create a more hospitable environment for the chosen intervention, and that the leadership strategies match the challenges faced during the process. (p. 16)

Implementing an evidence-based program is a time consuming process that requires a complex set of activities to occur over time and among stakeholders. The progression through the stages of implementation can take years and is characterized by progress, setbacks, and ongoing problem solving (Blasé et al., 2012). A brief description of each stage follows.

**Exploration and adoption stage.** The exploration and adoption stage is critical to successful implementation; however, the time and effort required for this stage is often neglected (Blasé et al., 2012). In this stage, the goals and activities are focused on securing buy-in, commitment, and understanding of the program and practices. To illustrate, Handler et al. (2007) and Sugai and Horner (2006) recommend that 80% of staff support or “buy into” SWPBS prior to implementation (Handler et al., 2007; Sugai & Horner, 2006). Obtaining buy in and understanding is key in avoiding conflicting philosophical beliefs and general misunderstanding of behavioral principles which have been reported as inhibiting factors to implementation (Kincaid et al., 2007). The exploration and adoption stage transitions to the installation stage as the decision to proceed with implementing an intervention is made (Khatri & Frieden, 2002; Schoenwald & Hoagwood, 2001).
**Installation stage.** The goals of this stage are to install the implementation infrastructure, make necessary organizational changes, and provide instrumental supports. Blasé et al. (2012) report that the installation stage is often overlooked or fails because the time and effort required to accomplish functions necessary at this stage are bypassed. This stage can be described as a stage of readiness. Feuerborn and Chinn (2012) state that without readiness failure to achieve meaningful and sustainable change is likely. Adleman and Taylor (2007) identify that the failure to give attention and time to strategies designed to create readiness by enhancing a climate/culture for change is a common deficiency associated with systemic change interventions. It is essential during the installation stage that factors including time for training to increase knowledge of PBS practices, the development and maintenance of change teams, resources, communication pathways, monitoring procedures, and financial supports are in place for successful implementation of SWPBS (Adelman & Taylor, 2007; Handler et al., 2007).

**Initial implementation stage.** This stage begins as students are first exposed to new instructional practices and/or new behavioral or social interventions or new school wide approaches. New explicit, simple, and consistent expectations for behavior are taught school wide and acknowledgement systems are put into place (Solomon et al., 2012). While traditional systems of office referrals and detentions, and suspensions may be kept as part of the new system, it is during the initial implementation stage that teachers and administrators learn to react to behavioral challenges in similar fashion as a academic challenge: with correction and teaching (Solomon et al., 2012). Significant challenges to implementation are present during this stage due to shifting roles and responsibilities. The steady progress to full implementation begins in this stage as the process is normalized, and competence, confidence, and support are increased.
**Full implementation.** Full implementation occurs once the new skills, operating procedures, data systems, communication links, and new culture are integrated into the classrooms, schools, district, and community (Blasé et al., 2012). Blasé et al. (2012) report that it is essential to acknowledge that full implementation and positive outcomes occur because the system changes to support the intervention, not because the core elements of the intervention have been changed to fit the existing system. In order to fully comprehend the relationship between the implementation of PBS, including functional behavior assessment, and implementation science in the school setting, it is first necessary to review legal and policy trends that led to the use of PBS in public schools.

**Legal and Policy Trends Related to Behavior Management**

Special education law has evolved over the last 35 years since the passing of Public Law 94-142, the Education for All Handicapped Children Act of 1975. Later renamed the Individuals with Disabilities Education Act (IDEA), the 1997 amendments resulted in the most sweeping changes to the law since its inception in 1975, with the most significant and controversial changes governing the discipline of students with disabilities (Skiba, 2002). These amendments sought to seek a balance between the need for safe and orderly schools while also protecting the right of children and youth with disabilities to a free and appropriate public education in the least restricted environment (Drasgow & Yell, 2001; Skiba, 2002).

The 1997 amendments were a response by Congress to the demand from parents, school personnel, and the community at large to increase the safety of schools, provide schools with avenues to effectively deal with problem behaviors, and to respond proactively to warning signs of problem behavior (Crone & Horner, 2001). Specifically, IDEA amendments provide the education agencies the provisions for short-term and long-term suspension and expulsion, the
necessity of a manifestation determination hearing, and the use of FBA and BIPs following a period that substantiates more than 10 days removal (either consecutive or combined) from the educational setting and when the behavior is found to be a manifestation of the disability (Benazzi, Horner, & Good, 2006; Maag & Katsiyannis, 2006; Scott et al., 2005; Skiba, 2002).

Prior to the amendments of 1997, students with disabilities were subject to traditional methods of punishment including zero tolerance policies that resulted in long-term suspensions or expulsions without consideration to the student’s disability.

Adapted from the war on drugs movement in the 1980’s, zero tolerance policies have been adopted in schools across the country since 1993. The enactment of the Gun-Free Schools Act of 1994 incorporated zero tolerance into public policy mandating 1-year expulsion and referral to the criminal justice system for possession of a firearm on school property (Skiba, 2004; Skiba & Knesting, 2001). Zero tolerance policies are a "no nonsense" approach to school discipline that increases the number and length of suspensions and expulsions for a broad range of behaviors including weapons, drugs, gang-related behavior, general disruption, and threats (Skiba, 2004). The overall goal of zero tolerance policies is to convey the message that specific behaviors will not be tolerated in schools by punishing minor and more significant offenses equally and severely (Skiba, 2000). Discipline procedures included in zero tolerance policies do not teach adaptive skills or replace challenging behaviors with acceptable behaviors; instead the punitive and exclusionary nature of zero tolerance procedures limit opportunities for students to learn and possibly enhance the rate of delinquency among students who are considered at risk (Skiba, 2004). Despite the consistent adoption of zero tolerance policies in schools there remains no evidence that supports zero tolerance policies of suspension and exclusion as effective methods for changing disruptive and violent behavior in schools (Skiba, 2000; Skiba, 2004;
Skiba and Peterson, 2000). It is questionable as to whether the disciplinary policies of zero tolerance have been adopted more for their symbolic nature to reassure school personnel and communities that adequately strong actions are being taken to detour the breakdown of school authority and order rather than for their effectiveness for promoting behavioral change in students.

The lack of research support for zero tolerance policies is a gateway for the introduction of FBA into public schools. Punitive measures such as zero tolerance policies have not been demonstrated to make sustainable change in the state of behavior present in public schools. These policies and methods are in direct contrast of the law and of the notion of positive behavior supports. FBA, however, has the least legal grounding of all the disciplinary provisions of IDEA and has been questioned by experts in the field if sufficient empirical support exists for the generalization of the technology to all students and whether or not school personnel have the skills required to conduct FBA with integrity (Quinn, 2000; Scott et al., 2005; Skiba, 2002). FBA is antithetical to current school discipline practices of quick and efficient suspensions and zero tolerance policies. Thus, incorporating FBA into mandated school practice requires a fundamental change in the philosophy of school discipline and practices employed by teachers in schools.

**Overview of Functional Behavior Assessment and Behavior Intervention Plans**

FBA is an empirically validated dynamic process used in the identification of variables that reliably predict and maintain challenging behaviors of an individual (Scott et al., 2008; Scott et al., 2004; Scott et al., 2005; Stichter & Conroy, 2005). The process of FBA consists of five phases which include (a) identifying the problem behavior; (b) identifying the contextual events that reliably predict the occurrence and nonoccurrence of the problem behavior; (c) identifying
the events (consequences) that maintain the problem behavior; (d) validating the functional hypothesis; and (e) creating an individualized BIP based on the identified function of the behavior that will decrease the occurrence of the problem behavior, teach new adaptive replacement behaviors, and generally improve the quality of the students life (McIntosh, Brown, & Borgmeier, 2008; Scott et al., 2008; Stichter & Conroy, 2005). Embedded within the conceptual intervention framework of PBS, FBA is a tool that has been promoted as the most logical, probable, and efficient course of action for resolving the presence of problem behaviors in individuals with and without disabilities (Scott & Kamps, 2007). Although there is ample research to support the use of FBA in clinical settings, the research to support the use of FBA as it is applied in free operant settings, such as schools, by individuals with varied training in assessment procedures and minimal working knowledge of behavioral theory, continues to emerge. The use of FBA in applied settings remains in the exploration stage; however, the available literature indicates the basic principles and tenants of FBA remain the same whether used in clinical or applied settings and are discussed in the following section.

Although Congress did not specify the components that constitute a valid FBA and positive behavior support plan, the amendments set forth in IDEA (1997) adopted a behavior analytic approach to guide best practices. The conceptual foundations of FBA are in operant learning theory that is grounded in the philosophy of science known as functionalism (Gresham, Watson, & Skinner, 2001). Functionalism rejects an understanding of behavior based on its topography as the topography of behavior is descriptive and explains nothing about the controlling functions of the behavior (Gresham et al., 2001). Behaviorism arises from functionalism and recognizes that all behavior is a function of the interaction between the
environment and behavior.Behaviorism postulates that behavior is not controlled by internal or hypothetical factors such as the mind.

**Review of Variable Influence on FBA Practices**

Research conducted on the role of school personnel in FBA implementation is limited in scope and depth. A review of the literature from 2000-2012 drawn from a broad spectrum electronic search concerning the variables that influence implementation of FBA in school settings follows, including FBA methods and technologies, FBA training strategies, procedural integrity and treatment fidelity, implementation of behavior intervention plans, and teacher attributes and self-efficacy. In addition, perceptions of special education teachers and district level administrators have been examined briefly through survey data collection methods. The results of these studies will be reviewed and reported as well.

**Students with significant problem behaviors.** There is an increase in the prevalence of students with or at risk for a disability who demonstrate chronic problem behaviors in public schools. These populations of students are educated in both the general education and special education settings with a range of identified or suspected disabilities to include but not exclusively limited to emotional behavioral disorders (E/BD), learning disabilities (LD), and other health impaired (OHI) to accommodate students with attention deficit hyperactivity disorder (ADHD). Students with or suspected of having a developmental disability, such as an autism spectrum disorder (ASD) or intellectual disability (ID) will not be included in the present study. Although their disability categories vary, the nature of problem behaviors displayed are similar. For instance discipline problems of disruption, social withdrawal, aggression, insubordination, property destruction, substance abuse, and other problem behaviors have been and remain significant barriers to effective learning and education (Scott et al., 2008). Low
frequency/high intensity behaviors are behaviors typically demonstrated by students who are likely to warrant an FBA. These types of low frequency/high intensity behaviors are difficult to observe and intervene creating significant challenges for school personnel in addressing the behaviors to create a safe learning environment.

Scott et al. (2008) report that high degrees of disruptive chronic behaviors in the early years of students' educational careers place them at higher risk for placement in special education and later school failure. A specific difficulty in addressing these types of behavior is the multiple contingencies by which they are maintained. The motivations of these types of behaviors may differ based on the context in which they occur. Additionally, the topography of the behaviors may vary based on contexts, although the function and motivation may be the same (Scott et al., 2004). The general lack of research in this area with the specified population and the chronic nature of behavior problems lend credence to the need for further examination.

Since FBA was originally established as a method for designing interventions for problem behaviors in highly controlled clinical settings with individuals with developmental disabilities, there is limited evidence on the utility and effectiveness of FBA with students who demonstrate chronic problem behaviors in public school settings. As previously noted, the problem behaviors of students in less controlled settings, such as public school classrooms, are maintained by multiple contingencies, which increases the difficulty of determining the antecedents that evoke and the consequences that maintain the behavior in order to appropriately address it through behavior intervention planning (Scott, Liaupsin, Nelson, & McIntyre, 2005; Scott et al., 2004). The complexities of students who intellectually fall within the average range, but demonstrate deficits in behavioral performance in free operant settings escalates the need for educators interacting with these students daily to comprehend and apply behavioral techniques
which address the variables that predict and maintain the behavior, rather than designing interventions on the topography of behaviors alone (Scott et al., 2004). The nature of behaviors demonstrated by this population is of significant social concern and therefore requires adequate attention to employ effective and socially valid interventions that can eliminate their chronic behavior problems in schools. In order to establish effective and valid interventions the assessment methods and technologies must be valid, in and of themselves and in their implementation. A discussion of the concerns surrounding FBA methods and technologies follows.

**FBA methods and technology.** An issue that the literature suggests impacts the treatment implementation of FBA is the lack of a standardized FBA protocol, especially one that is applicable to the conditions within an applied school setting. IDEA does not include a standard protocol by which the FBA process should be completed in school settings; furthermore, researchers have not arrived at a consensus regarding the methods and assessments that achieve the most reliable results in applied settings and with students of higher intellectual and communication abilities.

Descriptive analysis and functional analysis are the two primary methods for conducting FBA and validating proposed hypotheses of functions of behavior. Functional analysis is the overt manipulation of environmental factors to elicit a behavioral response to determine the function of the behavior (Gresham et al., 2001). Contention exists regarding the ability of descriptive methods of assessment to achieve the same conclusions of function of behavior as functional analyses (Murdock, O’Neill, & Cunningham, 2005). Currently there are a limited number of comparative studies examining different assessment methods although the available research demonstrates a heavy reliance on descriptive methods of assessment. Alter, Conroy,
Mancil, and Haydon (2008) conducted a series of indirect and direct assessments to evaluate the agreement between the primary functions of behavior determined by these assessments to each other and to the outcomes of functional analysis. The results indicated an overall agreement between descriptive assessments and functional analysis of 56% with a clear difference between the number of agreements for direct and indirect assessments. Direct observation yielded greater agreement with functional analysis than indirect assessments. Direct and indirect assessments had a low level of agreement (38%). Additionally the two indirect measures assessed in the study had significantly low levels of agreement ultimately leading teachers to identify different functions of the same behaviors. These low levels of agreement are in contrast with other studies examining the agreement between descriptive measures such as Newcomer and Lewis (2004). Alter et al. (2008) provided possible explanations for the low levels of agreement which included the limited training and experience of teachers resulting in inconsistency among instruments.

In addition to the study completed by Alter et al. (2008), Murdock et al. (2005) assessed the comparative outcomes and acceptability of different assessment procedures (direct observation, interviews, and social validity measurements) with students with E/BD. The results indicated an agreement rating of 64% across all three methods that were evaluated in the study. Newcomer and Lewis (2004) suggested that a defined procedure that delivers useable, valid information with minimal amounts of time, effort, and skill be developed for use in applied settings. Many researchers have expressed concern with expediting the FBA process as behaviors in free operant conditions may serve more than one function across settings requiring thorough review of all settings and behaviors to adequately determine the function(s) of the challenging behavior (Conroy et al., 2000; McIntosh et al., 2008; Scott et al., 2004; Scott et al., 2005).
Regardless of a traditional protocol or an expedited protocol, even the best technologies and methods will only be as valid and reliable as the user. Before a standardized process for FBA in school settings can be adequately explored, teacher knowledge and skills must be up to par when using the technologies that are available for use in the FBA process.

**Teacher training and implementation.** IDEA 1997 and 2004 recommend that FBA be conducted using a team format; therefore, it is necessary to focus on the skills and training of the individuals who comprise the FBA team. Federal legislation mandates training in FBA for pre-service and in-service teachers but fails to stipulate the specific strategies to be included in such training (Conroy et al., 2000; Gable et al., 2001). Dukes et al. (2008) summarize that the reauthorizations of IDEA in 1997 and 2004 have required school systems to conduct nothing short of a full scale training effort to provide school personnel with skills and knowledge necessary to conduct FBA in the school setting. The full-scale training effort is significantly limited due to the absence of a clear consensus among FBA “experts” to the knowledge and competencies required by school personnel to conduct FBA. State and local educational agencies are thereby forced to use best guesses to determine the components of the required training. Conroy et al. (2000) suggest that the considerable gap between research and practice may cause some FBA trainers to overstep the empirical knowledge base and provide training on what they perceive as appropriate rather than what the research base indicates as effective. Generally, researchers agree that school personnel have limited training and lack general knowledge and skills to conduct FBA in a systematic manner (Conroy et al., 2000; Conroy & Davis, 2000; Van Acker et al., 2005). Ervin et al. (2001), in their review of 100 articles, concluded that few studies have addressed the development of practical effective procedures for teaching and training school personnel to conduct FBA. Essentially, the content that constitutes
the best training practices and addresses the necessary knowledge and skills in FBA are unknown and lack general consensus among experts in the field (Quinn et al., 2001). Quinn et al. (2001) further establish that there is not a sufficient amount of applied research to indicate to what standard or how school personnel should be trained.

IDEA requires that school personnel be trained and competent in the application of FBA and in the development of a BIP (Quinn et al., 2001). This requirement is not isolated to those personnel in special education but is extended to all personnel who will potentially serve on an FBA team to include general education teachers and administrators. Team member roles and responsibilities vary during the FBA process; therefore, it is questioned if the amount and type of training for different personnel should vary to match their roles and responsibilities in the process (Conroy et al., 2000). Unfortunately, the lack of defined roles and responsibilities across school personnel on FBA/BIP teams makes the training endeavor significantly difficult. Studies that have addressed aspects of training in FBA among school personnel are described below.

Weber, Killu, Derby, and Barretto (2005) examined the resources available to school districts across the nation as developed by the state educational agency (SEA). The authors were interested whether the states had developed resources for school personnel in light of the absence of clear guidelines for conducting FBA set forth by IDEA, the procedures included in the resource, and compare component criteria provided by the SEA to the component criteria that is indicated as standard FBA practice. Forty-eight of 50 SEAs chose to participate in the study by providing available materials that served as resources to schools for completing FBA. Seven of the 48 states did not have materials available for analysis.

The authors determined that a “cookbook approach” is most commonly used by states to conduct FBA. The process is laid out as a sequence of events without consideration for the
context of behavior which has serious implications for the utility and effectiveness of intervention planning. States also did not demonstrate uniform practices and procedures regarding FBA methodology indicating a haphazard approach to assessment. Finally, it was determined that most resources for FBA are couched within discipline policies suggesting that FBA is a “post hoc reaction to behavior” and is not used in a preventative manner to address behaviors before they reach crisis levels.

In addition to training, access to resources is essential to school personnel having the material and guidance they need to conduct FBA. Materials should be compiled in a clear and precise manner that aids the FBA process, presents FBA as a proactive rather than reactive tool, and can fill some of the gaps between training and implementation.

School personnel demonstrate significant variance in skills and knowledge of FBA. Training and education in FBA is provided through a variety of means often beginning at the pre-service level and continuing through in-service although the depth and intensity of this training varies resulting in inconsistently trained and experienced personnel. Dukes et al. (2008) examined the differences between trained and untrained teachers’ ability to identify function of behavior and to make recommendations for interventions. The authors used a posttest only experimental design and concluded that there are significant differences between trained and untrained teachers’ knowledge of function but no significant differences between the group’s recommendations for intervention methods. Knowledge of function has been cited as an essential component of training (Conroy & Davis, 2000), thus the results of this study indicate that teachers who receive a brief in-service training regarding FBA methods do gain a general knowledge of the function of problem behavior.
Brief in-service trainings are not an acceptable means of establishing depth of knowledge. This acquisition level training does not yield sufficient results in the practice of FBA by school personnel. Although researchers have not committed to a general consensus on the components or delivery of training it can be derived from the literature that researchers in the field have arrived at the agreement that introductory level training is not sufficient to develop the skill set and knowledge base to adequately conduct FBA in a reliable and valid manner. One shot “train and hope” methods do not lend themselves to consistent practice, although it is unclear the level of intensity and supports that school personnel need to become competent in FBA (Conroy et al., 2000; Scott & Kamps, 2007; Van Acker et al., 2005).

Competence in FBA through training is essential to the delivery and implementation of FBA and behavioral interventions in a valid and reliable manner. Procedural integrity is vital to understanding whether an intervention succeeded or failed thus an understanding of how to conduct FBA and implement behavior plans is essential to the overarching FBA process.

**Procedural integrity and treatment fidelity.** Researchers concur that when function-based interventions are implemented with integrity they produce verifiable results leading to an improvement in behavior (Gum, 2002; Newcomer & Lewis, 2004; Solomon et al., 2012; Wood et al., 2004). Treatment integrity is defined by Wood et al. (2004) as the extent to which an intervention is implemented as described and intended and behavior change is not due to extraneous variables unrelated to the intervention. Treatment integrity is directly linked to the success or failure of an intervention; therefore, it must be demonstrated in order to distinguish between an ineffective intervention and an effective plan that was poorly implemented (Gable et al., 2001; Wood et al., 2007).
Interestingly, Wood et al. (2007) conducted a single-case experimental design study to determine if a comprehensive, direct measure of treatment integrity would make it possible to determine whether equivocal intervention results could be attributed to the intervention itself or to poor implementation of the intervention. The results indicated that the on-task behaviors of the target child demonstrated little to no improvement compared to baseline in the absence of treatment integrity data. When treatment integrity data were provided there was a close correspondence between treatment integrity and the target behavior with 91% of intervals demonstrating on-task behavior when the treatment was delivered correctly. Improvements in the target child’s on-task behavior was assessed to be directly linked to the integrity by which the intervention was delivered by the teacher thus diminishing the likelihood that the changes were due to extraneous variables. The variables which influence teacher ability to implement interventions with integrity need to be addressed to avoid designing interventions that are not acceptable or likely to be implemented as designed on the BIP.

Gable et al. (2001) examined the critical issue of treatment fidelity and avenues by which school districts can maintain fidelity when implementing school-based FBA. The factors that are determined to influence the likelihood that school personnel will implement interventions as designed and results can be claimed to be a result of the intervention are (a) goodness-of-fit, (b) contextual fit, (c) treatment acceptability, (d) knowledge of effective interventions, (e) procedural reliability/treatment integrity, (f) social validity, and (g) functional validity. Overall, the intervention must fit without being intrusive within the context of the setting and must also be perceived as a valuable and effective avenue to change challenging behavior to be maintained by the personnel responsible for implementing the intervention.
Behavior intervention plans. The assessment process of FBA yields an intervention plan that targets the function of the challenging behavior and replaces it with socially appropriate and acceptable behaviors that serve the same function. FBA teams are therefore required to develop interventions based on the function of the behavior to implement in the school setting. One study examined the ability of a school district in the development of behavior plans for children with E/BD. Blood and Neel (2007) conducted the study in a mid-sized school district in eastern Washington. The sample consisted of 43 students primarily educated in self-contained classrooms for children with E/BD. Experimental procedures used in the study included a file review from the 2005-2006 school year to include the child’s individual education plan (IEP) and existing FBA and BIP, interviews with six self-contained E/BD teachers to determine the role FBA and BIPs had in their planning and development of programs for children in their classrooms, and tests of inter-rater reliability were conducted that yielded 100% on file reviews and teacher reports.

All children included in the study had at least one behavior goal in their current IEP. Fifteen children had a formal FBA on file and 14 had a BIP. The primary methods of assessment included indirect measures of teacher interviews, observation, and rating scales when FBA was conducted indicating the information obtained through the FBA was limited in scope and not validated to confirm the function of the behavior. Twenty-three of the 28 children without a FBA on file had a BIP included in their records. BIPs that were reviewed were determined to be compliance documents consisting of a hierarchal stock list with positive and negative consequences uninfluenced by the data provided in the FBA if one were present in the file.

Teacher knowledge of the FBA and BIP were insufficient. Teachers were not able to identify the written behavioral goal in the IEP nor could they describe the behavior plan in place.
Teachers reported that interventions were developed within the classroom and not informed by the FBA or BIP further suggesting the documents were for compliance rather than program planning and behavior change based on functions of behavior rather than topography.

This study yields results that suggest FBA is not a common practice within this district. However, the results must be viewed with caution as they are limited in their ability to be generalized. The study was conducted with one school district and cannot be readily generalized to other school districts as the standard of practice. Furthermore, it is not clear based on the information in the study if the school personnel have received training in the area of FBA or have knowledge of positive behavior supports. It is, however, disappointing and puzzling that 10 years after the passing of IDEA 1997, FBA is not a standard practice in this district and begs the question of how many more school districts throughout the country have practices that are equivalent to the one included in this study.

The behaviors, technologies and methods, training and procedural integrity may all impact a teacher’s ability to implement FBA in a valid manner; however, an area that has not received attention in FBA literature is teacher attributes and self-efficacy. The suspected importance of these factors is discussed below.

**Teacher attributes and self-efficacy.** In addition to other factors, teacher attributes may also influence when and if a FBA is conducted and the integrity and efficacy by which the resulting intervention(s) is implemented. Unfortunately this area has received minimal recognition in the research. Most existing research resides in the field of psychology examining factors of teacher burnout and student referral patterns. Fortunately, the information obtained through these studies can be extrapolated to form hypotheses regarding teacher attributes and self-efficacy in the implementation of FBA and BIPs in education.
Attributes of the teachers influence the teachers’ beliefs and perceptions about student behavior, their willingness to engage and commit to the FBA process, and their selection of interventions and the integrity by which they implement interventions in the classroom. Specific attributes that are cited in the literature that contribute to a resistance among teachers to actively participate in the intervention process are teacher thought processes, attitudes, values, beliefs, personality traits, and attributions of causality (Gordon, 2001; Hyman, Winchell, & Tillman, 2001).

Self-efficacy is defined as one’s general beliefs about his or her own “capacity to organize and execute” (Bandura, 1977, p. 3) the tasks required (Pas et al., 2010). The concept of self-efficacy is rooted in the cognitive theory of social learning and influences behavior, affects goal setting, and affects the ability to persist in difficult tasks; it is one of the few teacher characteristics that consistently relate to teaching and learning (Pas et al., 2010). Carlson, Lee, and Schroll (2004) conclude that teacher attitudes and beliefs, such as self-efficacy, are important in understanding the decisions and behaviors of teachers. Overall, teachers’ positive attributes and high self-efficacy are positively correlated with effective instruction, proactive and positive classroom management, and higher student performance (Pas et al., 2010). Pas et al. (2010) further state that high efficacy teachers are more likely to implement interventions suggested by consultants. In this case, it can be extrapolated that high efficacy teachers would be more likely to be accepting of the FBA process and implement interventions with integrity as opposed to their low efficacy counterparts.

Gordon (2001) compared high efficacy and low efficacy teachers to analyze differences in teacher’s cognitive, affective, and behavioral reactions to challenging behavior within the classroom. The article discusses and investigates the three primary dimensions of attribution
theory which include locus of causality, stability, and controllability in regard to teacher efficacy and teacher attributions for problem causality and responses to challenging behavior. Locus of causality refers to the cause of the behavior being internal or external to the individual, stability describes whether the cause is stable (permanent) or unstable (temporary), and controllability reflects whether the cause can be controlled by the individual. The sample consisted of 289 elementary school teachers in 21 urban public schools. A mixed method design was used to collect quantitative (survey) and qualitative (observation and interview) data. The results indicate that high efficacy teachers are less likely to view student behavior as internally controlled and chronic, engage in more proactive and positive behaviors to decrease the likelihood of challenging behaviors occurring in the classroom, and generally use fewer negative consequences and severe punishments for challenging behaviors. Furthermore, the study shows that teacher efficacy, especially the confidence that the teacher holds regarding his or her personal ability to be an effective change agent, and patterns of reaction to externalizing behaviors influence the overall educational experience of students with and at risk for emotional and behavioral disorders.

Additional studies conducted from 1986 to 2001 examined factors that influence teacher resistance to implementing behavioral interventions in the classroom. Two dominant themes common among the studies include theoretical principles and misconceptions about practical issues involved in the use of behavioral approaches in schools. Hyman et al. (2001) indicate that teachers frequently attribute causal factors of challenging behaviors as internal to the child (i.e., motivation, ability, home challenges), thus teachers base interventions on their beliefs and attitudes toward causal attributions of misbehavior. Misconceptions about practical issues related to the use of behavioral interventions in schools are significant contributing factors to the
failure of teachers to implement interventions with integrity. Furthermore, studies have indicated a positive relationship between intervention efficacy and the degree to which teachers are satisfied with the intervention. Essentially, supporting evidence for the effectiveness of an intervention is not as important as the teacher’s belief that the intervention is effective.

In addition to teacher time, interventions frequently require changes in the ecology of the classroom and more specifically require changes in teacher behavior. Changing the ecology of the classroom possesses the potential to result in second and third order consequences of the intervention. Altering teacher behavior requires changing the belief systems, attitudes, and causal attributes that teachers possess about student behaviors, classroom management, and intervention strategies. Additionally, psychodynamic approaches to teacher resistance attempt to understand resistance in terms of objectivity such as conflicts between the student and teacher resulting in a dislike of the student. Based on the attributes that teachers possess that interfere with their ability to implement interventions with efficacy results in the need for behavioral interventions to be conducted and monitored by multiple sources thus indicating the need for a team approach to intervention.

Teacher attributes and self-efficacy are but two factors that may be linked to the willingness of teachers to be active participants in the FBA process. Another factor that has been briefly examined in the literature is the perception that school personnel hold regarding FBA. The impact of school personnel perceptions and beliefs about FBA are discussed in the next section.

**School personnel perceptions.** School personnel's belief systems and attributes about problem behavior may have a direct influence on their perception or use of FBA. Research focused on the challenges of school districts in light of IDEA requirements offer avenues through
which the process can be developed for use in applied settings in a valid and reliable manner. The perceptions that school-based personnel hold regarding the process of FBA influence how and when FBA is initiated. Best practice suggests that FBA be used as a proactive and preventative measure that is initiated before behavior reaches a crisis thus requiring FBA as prescribed by IDEA (Scott et al., 2005). It is important to understand the types and intensities of behaviors that are most likely to initiate the FBA process, the procedures used by school districts when conducting FBA, and the persons responsible for conducting FBA and implementing interventions (Conroy et al., 2000; Katsiyannis, Conroy, & Zhang, 2008; Quinn et al. 2001).

Several studies have been conducted to examine FBA practices in applied settings. Katsiyannis et al. (2008) recently examined the use of FBA practices across and within school districts from the district level perspective. The researchers were particularly interested in (a) the nature of behaviors addressed by FBA, (b) the type and usefulness of FBA procedures most frequently used, and (c) the typical individuals involved in the FBA process. A survey was conducted with 75 special education directors and supervisors in two southeastern states. The results indicate chronic classroom behavior problems, verbal aggression, and physical aggression as the top three most problematic behaviors. Physical aggression (98%) and chronic behavior problems (96%) were rated as the behaviors that most frequently lead to an FBA. Interestingly, weapon (42%) and drug (54%) related behaviors which require FBA under the stipulations of IDEA were ranked lower.

The majority of disciplinary actions were punitive in nature including removal from class, suspension, and expulsion. The FBA practices most frequently used involved descriptive methods of interviews and informal direct observations while analog probes and manipulation of instructional variables ranked as less frequently used. The most helpful procedures were
identified as interviews and observations for some behaviors. The procedures used correspond with the procedures defined by FBA as most effective practices including indentifying consequences, developing hypotheses, and operationally defining behaviors. Only 52% identified validating the hypotheses prior to the intervention as a standard district practice. Special education teachers (94.7%) were primarily identified as the personnel involved with and responsible for conducting an FBA. As recommended by IDEA, a team approach was reported by 68% of participants with 26.7% of FBAs completed by an individual. Overall, the participants in the study rated FBA procedures as moderately effective.

Couvillon, Bullock, and Gable (2009) published a complimentary study examining the variables in which schools conduct and implement BIPs to determine the barriers to the FBA/BIP process and effective implementation of the BIP. This study is similar to the study conducted by Katsiyannis et al. (2008) with exception of the participants surveyed. The participants in the present study included a national sample consisting of front line teachers with only 9% of the sample composed of administrative or consultant personnel. Comparative analysis and multivariate analysis of variance provided the following results. Fifty-four percent of the sample had received formal coursework and in-service training in FBA while 15% reported no training, 10% had in-service training only, and 21% had formal coursework only. As in the previous study, chronic classroom behavior problems, verbally aggressive behaviors, and physically aggressive behaviors were rated as the highest ranked behaviors most likely to lead to an FBA. As mentioned by Katsiyannis et al. (2008), weapon and drug-related behaviors received the lowest percentage ranks of behaviors likely to lead to the initiation of an FBA, despite the legal mandates of IDEA. Information was not provided regarding the personnel responsible for the
FBA, whether the process was conducted by a team or individual, and who was included on the FBA team if a team process was identified.

Among the studies examining the perceptions of school personnel regarding the practice of FBA there is an agreement on a few key factors. The behaviors most frequently initiating an FBA are chronic and low level rather than the behaviors involving weapons and drugs that are specified in IDEA 1997 and 2004. The absence of multiple studies examining and comparing the perceptions of school personnel regarding the use of FBA in schools is disturbing as the areas that generate the most concern are directly linked to the perception and willingness of school personnel to implement FBA with integrity. There are many areas of concern with regard to FBA in applied settings and further research investigating these areas is required to gain a full understanding of the changes that are required to define FBA in terms of use for applied settings.

**Comprehensive Reviews of School-Based Use of FBA**

The literature base on the use of FBA in school-based settings for students with or at risk for a disability who demonstrate chronic problem behaviors is growing (Gage, Lewis, & Stichter, 2012). These students often display low rate, but high intensity behaviors making an assessment of the behavior difficult to capture as these behaviors are often influenced by multiple contingencies of reinforcement (Scott et al., 2004). Five comprehensive literature reviews were conducted between the years of 2000-2004 followed by two meta-analytic reviews of the literature in 2012. First, the comprehensive reviews are discussed followed by the meta-analytic reviews of the literature to determine the utility of FBA in school-based settings. The findings from these reviews are demonstrated in Table 1 and briefly summarized below in chronological order.
<table>
<thead>
<tr>
<th>Author(s)/date</th>
<th>Purpose</th>
<th>Methods</th>
<th>Major findings</th>
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<tr>
<td>Heckaman, Conroy, Fox, &amp; Chait (2000)</td>
<td>Review literature on the application of functional assessment-based intervention techniques to students with or at risk for E/BD who demonstrate problem behavior to determine trends in (a) the implementation of assessment procedures, and (b) the intervention derived from the assessments.</td>
<td>Twenty-two studies reviewed with students with E/BD in a school setting.</td>
<td>Students aged 4 to 14 years, majority male, with externalizing behaviors.</td>
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<tr>
<td>Sasso, Conroy, Stichter, &amp; Fox (2001)</td>
<td>A critical review of the existing experimental literature in the area of E/BD</td>
<td>Eighteen studies, including 40 students with or at risk for E/BD.</td>
<td>Students aged 4 to 14 years, 90% male, with externalizing behavior. Utility of FBA techniques not investigated or validated. Operant function of behavior not validated. Few directly linked interventions to assessment data.</td>
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<td>Author(s)/date</td>
<td>Purpose</td>
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<td>Ervin, Radford, Bertsch, Piper, Ehrhardt, &amp; Poling (2001).</td>
<td>Provide a descriptive analysis and critique of school-based FA articles from 1980 to 1999.</td>
<td>One-hundred articles with 278 participants.</td>
<td>Eighteen percent of participants were labeled as E/BD with 73% being males ranging in age from less than 4 years to 18 years old demonstrating externalizing behaviors. A wide array of procedures reported but primarily indirect and descriptive methods of assessment. Experimenters controlled variable manipulation while school personnel implemented interventions primarily without support from researchers. Function-based interventions were successful. Fifty-seven percent of cases reported procedural integrity.</td>
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<td>Author(s)/date</td>
<td>Purpose</td>
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<td>Reid &amp; Nelson (2002)</td>
<td>Examine utility, acceptability, and practicality of FBA for students with high incidence problem behaviors in school settings.</td>
<td>Fourteen studies with a total of 43 participants.</td>
<td>Ten students labeled E/BD with 37 being male. Clear reductions of challenging behavior and improvement of acceptable behaviors reported in 12 of 14 studies. Thirteen studies reported process conducted by researchers with limited school personnel involvement. Procedures varied across studies as well as time required to complete the process. Acceptability reported in four studies.</td>
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<tr>
<td>Gresham, McIntyre, Olson-Tinker, Dolstra, McLaughlin, &amp; Van (2004).</td>
<td>1. Determine number of studies using FBA-based interventions and the type of assessments used.</td>
<td>One hundred-fifty studies from the <em>Journal of Applied Behavior Analysis</em> from 1991 to 1999</td>
<td>Same proportion of studies used descriptive and experimental procedures. Combination of procedures was less common.</td>
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Table 1 continued

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<th>Purpose</th>
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<th>Major findings</th>
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<td>2. Examine the type of interventions used that are consistent with the principle of positive behavioral support.</td>
<td>Less than half of the interventions were based on data from FBA.</td>
<td>FBA-based interventions are no more effective than non-FBA-based interventions.</td>
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<td>3. Determine the response classes targeted for intervention, and,</td>
<td></td>
<td>School-based interventions were reactive instead of preventative.</td>
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<td>4. Assess the magnitude of intervention outcomes.</td>
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<td>Data are insufficient to determine the reliability and accuracy of school personnel to develop and implement interventions.</td>
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<td>Existing database insufficient to determine when, how, and under what conditions FBA is most appropriate.</td>
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Heckaman, Conroy, Fox, and Chait (2000) reviewed 22 articles on the application of functional assessment based intervention techniques to students with or at risk for E/BD in school-based settings. The 68 students ranged in age from 4 to 14 years with the majority (51) being male demonstrating behaviors that ranged from physical aggression, verbal aggression, task avoidance or refusal, to general disruption and noncompliance. In summary, the authors reported that the procedures used and the interventions developed are idiosyncratic to specific researchers or situations. A validated, integrated methodology for conducting assessments was not revealed in the findings; however, most studies focused on indirect or descriptive analyses to identify the function of behavior. In 16 of 22 studies, classroom staff predominantly implemented interventions, however, only half those studies reported measures of procedural integrity. The authors note that procedural integrity is critical to understanding the results and for replication.

Sasso, Conroy, Stichter, and Fox (2001) and Ervin et al. (2001) conducted two comprehensive reviews of the literature. First, Sasso et al. (2001) conducted an abbreviated review of the literature. Forty students with or at risk for E/BD ranging in age from 4 to 14 years were included across the studies with 90% of the students being male. The children included in the studies engaged primarily in externalizing problem behaviors. In 63% of the studies reviewed, appropriate behaviors such as task engagement and on-task were included in the analyses. None of the studies investigated or validated the utility of the FBA technique nor did the studies validate the operant function of the behavior. Few studies directly linked information gained from the assessment to the selection of the intervention. Although in a study conducted by Ingram, Lewis-Palmer, and Sugai (2005), function-based interventions yielded greater and
more stable effects than nonfunction-based interventions on the behavior of two children demonstrating challenging behaviors that were considered at risk.

A more thorough and comprehensive review, Ervin et al. (2001) reviewed 100 articles with 278 total participants. The review included a broad range of diagnostic labels and students without an identified disability. Studies were included in the review based on the criteria that they contain information about functional assessment and functional assessment methodology as conducted in school-based settings. The majority of participants in the study were identified with cognitive impairment (71%), while 18% of the participants were labeled with E/BD. The relatively low rate of students with E/BD further indicates the sparse literature base concerning students who demonstrate chronic behavior problems in regard to FBA.

A wide variety of behaviors were addressed in the studies with disruptive behavior (e.g., screaming, aggression, self-injury, property destruction) measured as the most frequently addressed behavior. A wide range of assessment procedures were utilized in the studies including descriptive and systematic observations (74%), interviews (49%), and rating scales. Teachers were the primary reference used in the interview process and were often the only contributing persons. For the majority of participants (60%) the above listed methods were the only methods used in the assessment process. Other methods indicated in the review were preference assessments (16%) and record reviews (8%).

During the experimental phase of the assessment, it was found that experimenters controlled variable manipulation in the majority of studies, although during the intervention phase school personnel conducted or were involved in the implementation of the intervention with (10%) and without (23%) experimenter assistance. School personnel working with students with disabilities typically implemented the intervention without the assistance of the
experimenter. Interventions and combinations of interventions varied across participants. The most commonly used strategies were consequence manipulation, antecedent manipulation, and skills training.

The function of the behavior was disclosed or inferred in 89% of all cases with differences existing between children with and without disabilities. Multiple functions of behavior were identified for several participants (23%) with escaping tasks or demands (44%) being noted the most common function for students with disabilities. Attention-seeking behaviors were the second ranked function of behavior with gaining and object/activity and gaining sensory stimulation closely ranked.

Overall, interventions were successful when based on the function of behavior and produced the desired behavior change. Procedural integrity was documented for 57% of the cases and was demonstrated to be collected more readily on students without disabilities. The most common method of measurement was direct observation in conjunction with a treatment integrity checklist. Twelve percent reported treatment acceptability data with school personnel the number one source.

In 2002, Reid and Nelson conducted a synthesis of the literature to assess the extent to which researchers have begun to develop and study the utility, acceptability, and practicality of FBA procedures for students with high incidence problem behaviors in school settings. The review consisted of 14 studies with 43 student participants. The diagnostic categories included ADHD (7) and E/BD (10) while a disability category was not reported for the remaining participants.

The results suggest the utility of FBA as promising with the effects of FBA resulting in clear reductions of challenging behavior and improvement of acceptable behaviors in 12 of the
14 studies reviewed. Acceptability of FBA was reported in only four studies but consisted of mostly positive results. Thirteen studies reported the FBA process as conducted by researchers with limited participation by school personnel. The FBA procedures varied across studies as well as the time required to complete the FBA process (range of 3 to 20 sessions). The findings of this review further indicate a sparse literature base concerning students with challenging behaviors and the use of FBA in school settings as conducted by school personnel in the absence of a researcher.

Gresham et al. (2004) reviewed 150 school-based studies from the *Journal of Applied Behavior Analysis* from 1991 to 1999. Over the 10-year period, the review indicated that the same proportion of studies used descriptive and experimental FBA procedures to develop interventions; however, a combination of the two methods were less common. Less than half of the school-based intervention studies based the development of interventions on the information obtained through the FBA. The review also indicated that FBA-based interventions are no more effective than nonFBA-based interventions. Additionally, most of the school-based interventions focused on reacting to behavior instead of addressing the antecedent events to decrease the likelihood that the behavior would occur. The authors further establish that data is insufficient to determine that school personnel can reliably and accurately determine the function of behavior and use this function to develop appropriate function-based interventions. Finally, the authors conclude based on their review of the literature that the existing database is lacking regarding when, how, and under what conditions FBA is most appropriate.

**Overview of Meta-Analytic Reviews**

In 2012, two meta-analytic reviews were conducted on FBA. A synopsis of each review is included in Table 2. Table 2 is followed by a broader discussion of each review.
### Table 2

**Summary of Meta-Analytic Literature Reviews**

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<th>Purpose</th>
<th>Methods</th>
<th>Results</th>
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<td>Goh &amp; Bambara (2012).</td>
<td>Examine school-based intervention research based on FBA to determine the effectiveness of key individualized positive behavior support practices in school settings.</td>
<td>Eighty-three studies with 145 participants between the years of 1997 and 2008</td>
<td>FBA-based interventions can effectively reduce problem behavior and increase appropriate skills. Few reports of maintenance (20%) and generalization (7%). Few differences exist between participant characteristics, grade level, and classroom setting suggesting FBA interventions are equally effective across those variable. Team decision making during intervention planning yielded highly effective interventions.</td>
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<td>Gage, Lewis, &amp; Stichter (2012).</td>
<td>Extend work of previous reviews of FBA-based intervention research conducted in schools with students with or at risk for ED/B utilizing HLM meta-analysis to determine</td>
<td>Sixty-nine studies with 146 students.</td>
<td>Age range of participants was 3 to 16 years with FBA interventions effective across the age range.</td>
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<td>(a) how effective FBA-based interventions are for students with or at risk for E/BD in schools, (b) whether student assessment and intervention, and study characteristics impact results, (c) how the results of this analysis compare with the results of earlier meta-analyses.</td>
<td>FBA-based interventions that do not use functional analysis appear to be less effective at reducing problem behaviors. No statistically significant differences in FBA-based results between researchers and teachers effectively conducting FBA in natural settings. Positive interventions exceeded other types of interventions.</td>
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Goh and Bambara (2012) examined school-based interventions research based on FBA to determine the effectiveness of individualized positive behavior support practices in school settings. Eighty-three studies including 145 participants between the years of 1997 and 2008 were included in the review. Three research questions were answered through this review. First, the authors sought to determine the effectiveness of FBA-based interventions for reducing problem behavior, increasing alternative or appropriate behavior, and facilitating maintenance and generalization outcomes. The results indicate that FBA-based interventions can effectively reduce problem behavior and increase appropriate skills while also yielding effective maintenance results for behavior change. Maintenance was 20% assessed in 20% of the reviewed studies; therefore, further examination is required to determine if durable outcomes are produced. Additionally, fewer studies measured generalization (7%). Only half of the studies (53%) focused on reducing problem behavior also measured increases in appropriate skills. This is problematic in that a hallmark of PBS is teaching alternative skills and a gap in this area creates a deficit in understanding how FBA interventions can improve behaviors.

The second research question addressed if intervention effectiveness is related to participant characteristics. Few differences were found between participant characteristics, grade level, and classroom setting. Based on the lack of statistically significant differences among the variable categories it suggests FBA interventions are equally effective across a range of disability categories, classroom settings, and grade levels. Intervention effectiveness is reported to have greater effects in elementary grades and special education classrooms; however, there are increasing numbers of cases outside these categories demonstrating successful intervention with higher incidence disabilities and grade levels other than elementary. From 2004 to 2008 more FBA-based intervention studies (71%) were conducted with students with other or no disabilities
than with students with developmental delay (DD) and in the general education classroom. This increase is promising as evidence is developing for the use of FBA with nontraditional populations in diverse settings.

Finally, the authors sought to establish if the effectiveness of FBA-based interventions related to the incorporation of individualized positive behavior support features in assessment, planning, and implementation of the intervention. The meta-analysis revealed that team decision making during intervention planning resulted in highly effective interventions thus supporting team decision making as a core practice of PBS although current studies still lack in incorporating team decision making.

Gage et al. (2012) conducted a meta-analysis including 69 studies and 146 students to examine the empirical evidence of FBA-based interventions for students with or at risk for E/BD. Mean shift, trend, and variability were examined for FBA-based intervention effects. The mean shift effect was statistically significant indicating that, on average, FBA-based interventions for students with or at risk for E/BD reduced problem behaviors by 70.5%. This finding is in line with the findings by Goh and Bambara (2012). The trend indicated a flat baseline slope with an intervention slope that had a significant declining trend, and variance components indicated significant variability within and between students. The authors suggest that the results support FBA-based interventions as effective practice.

In summary, five comprehensive reviews between 2000 to 2004 and two meta-analytic reviews conducted in 2012 evaluated 478 articles on the topic of functional behavior assessment. The reviews indicate many issues and gaps in the literature base for the use of FBA with high incidence disabilities in applied settings. The population examined included predominantly male students ranging between the ages of 4 and 14 years old exhibiting externalizing behaviors. Due
to the relatively small samples of students with chronic problem behaviors it is difficult to
generalize techniques used in functional assessment across ages and types of problem behavior
that prompt FBA.

It is challenging to determine critical components or features of the methods and
procedures used in FBA based on the widespread variations reported in the reviewed studies.
Heckaman et al. (2000) identified that the procedures used to assess behaviors are idiosyncratic
to the researcher or situation being assessed thus the reviews did not identify a validated
integrated methodology to be used when conducting a FBA (Reid & Nelson, 2002; Sasso et al.,
2001). Ervin et al. (2001) and Heckaman et al. (2000) indicated a reliance on indirect and
descriptive measures to identify functions. Gresham et al. (2004) relayed that descriptive and
experimental procedures were used in the same proportion, however, using the two methods in
combination was less common. It is indicated by these reviews that functional assessment
procedures are in dire need of refinement and standardization to capture the high intensity but
low frequency behaviors of the target population of students with or at risk for chronic behavior
problems.

The comprehensive literature reviews and meta-analytic studies reported that function
based interventions yielded greater and more stable effects than nonfunction-based interventions
(Ervin et al., 2000; Gage et al., 2012; Goh & Bambara, 2012; Reid & Nelson, 2002; Sasso et al.,
2001). However, Gresham et al. (2004) found in their review that FBA-based interventions were
no more effective than nonFBA-based interventions. The reported procedural integrity and
social validity data are insufficient to promote an understanding of whether interventions are
delivered as intended and at the expected dosage. The lack of procedural integrity data also
prohibits the replication of results which further prohibits the standardization of protocols and
intervention implementation (Heckaman et al., 2000). Additionally, procedural integrity measures are essential to understanding the acceptability of FBA in school settings when conducted by school personnel. There is preliminary evidence to suggest that FBA has utility in school settings; however, the literature has not established the necessary training methods and procedures to adequately instruct school personnel in the implementation of FBA and the development and implementation of interventions in the absence of a researcher (Ervin et al., 2001; Gresham et al., 2004; Reid & Nelson, 2002; Sasso et al., 2001). As schools adopt behavioral intervention practices, including FBA, it is essential that during the installation phase that they continue to review the training methods and procedures that are in place.

Summary

This review of FBA has included its conceptual foundation within applied behavior analysis and positive behavioral support, legislative and policy requirements that guide FBA implementation in the school, the history and key components of FBA, the results of meta-analyses of FBA implementation, and the factors that affect the use of FBA as a school-based intervention. Findings focus on the identification of areas of concern, issues and gaps, and the need for future research.

Areas of Concern

The application of FBA in school settings is not flawless. Perhaps due to policy exceeding the research base there are many components of FBA that require further scrutiny before FBA is palatable to personnel conducting FBA in schools (Ervin et al., 2001). Some areas of concern have received greater attention in the research than others, such as the behaviors that prompt an FBA and methods and technologies. While other areas have received less attention thus far in the research they are no less important factors in the effort to design a form
of FBA that functions with integrity and is palatable within applied settings. One area that has not been previously investigated is the influence of teachers' beliefs and self-efficacy on the implementation of FBA and BIP.

**Issues and Gaps**

The literature confirms that a significant number of issues and gaps exist between the application of FBA in public settings and the requirements of current public policy. These gaps contribute to uncertainties impacting all aspects of FBA in public schools, including training and use of the technology by school personnel in the absence of highly qualified experts. While IDEA requires the use of FBA for specific behaviors, the literature has demonstrated that school personnel use the technology for a wider array of behaviors that are typically low frequency but high intensity behaviors and vary in function across settings within the school (Katsiyannis et al., 2008; Scott et al., 2005). An array of issues and gaps exist in the current literature base and practice of FBA in schools including technologies, training, teaming, development of a BIP based on FBA information, and procedural integrity and treatment fidelity. Exploration of teacher attributes and teacher self-efficacy is necessary to fully comprehend the factors that influence teacher behavior and the likelihood that they will implement FBA and BIPs with integrity in order to achieve a positive student outcome.

**Future Research Related to Literature Base**

The issues and gaps found in FBA literature present ample opportunities for future research. The available literature on the utility of FBA in applied settings is limited in scope and the ability to be generalized across settings and individuals (Ervin et al., 2001). Future research is needed to address this issue by increasing sample sizes and diversifying the geographical areas and school personnel included in studies.
The use of FBA technologies for the low frequency but high intensity behaviors have not been validated for use under these conditions with populations of high functioning individuals. FBA is an intensive time consuming process when completed as traditionally designed using a variety of methods of assessment and validation of hypothesis prior to intervention. The law and experts have failed to define and specify the course and essential components of the FBA process; therefore, schools frequently attempt to expedite the traditional process of FBA by circumventing steps resulting in incomplete, invalid, and unreliable assessments of behavior (Conroy et al., 2000; Quinn et al., 2001). Research is needed to determine the technologies that provide the most reliable and valid FBA assessments when conducted in school settings and defined as a standard of practice to provide school systems guidance in FBA.

The training of school personnel is also an area in which research is needed for a better understanding of effective training methods and modes. It is clear that training must be continuous over time, beginning in pre-service education and continuing throughout in-service, and also must provide supports outside of the initial training to include technical assistance and collaboration from experienced and highly trained professionals (Conroy et al., 2000; Gable et al., 2001). In addition to training, research is needed to explore school personnel perceptions of the FBA process, procedural fidelity, and treatment integrity to determine if the failure of FBA to address challenging behaviors is within the technology and process of FBA or a result of human error and misapplication.

**Rationale for the Proposed Study**

FBA in applied settings is an area rich for continued research due to the lack of consensus among experts regarding the methods, technologies, training, and supports required by school personnel to produce a valid and reliable FBA. The only consensus that has been reached
by experts is that there is insufficient evidence to support the use of FBA in applied settings indicating that public policy has surpassed the current knowledge base (Drasgow & Yell, 2001; Dukes et al., 2008; Gresham, 2003; Quinn et al., 2001). Despite the necessity for research in the area of FBA and the continued use of FBA with students with or at risk for disabilities who demonstrate chronic problem behaviors in applied settings, research on the appropriateness of traditional FBA has declined in recent years following the passage of the disciplinary amendments to IDEA (1997). The addition of the amendments in 1997 fueled an increase in the review and exploration of the use of FBA in public schools yet this increase has not been sustained in recent years.

Comprehensive reviews of literature and meta-analytic reviews focused on FBA in applied settings with students with high incidence disabilities have been limited in the years following the inception of FBA into federal law in 1997. Multiple comprehensive reviews were conducted between the years 2000 and 2004; however there is a gap from 2004 to 2012 when the meta-analytic reviews were conducted. Despite the gap in the comprehensive review and meta-analytic literature, research exists that focuses on teacher perceptions of FBA, methodologies, procedural integrity and treatment fidelity, and the effects of FBA on behavior change. These studies address a more functional perspective of FBA—how FBA can be used in an authentic setting with integrity.

School personnel, especially special education teachers, are primarily responsible for conducting FBA, yet little is known regarding their perceptions of FBA as an assessment tool with higher functioning students in the school setting. Additionally, little is known regarding teacher attributes and efficacy in the implementation of FBA and BIP. Exploring the perceptions of front line personnel regarding the use and effectiveness of FBA in school settings and the
attributes that influence teacher behavior is an opportunity to expand the knowledge base through the development of an understanding of what teachers perceive as effective, ineffective, and needed but absent or underdeveloped components of the FBA process.

**Research Questions**

In response to the current trends and gaps in the literature, the overall purpose of the study is to critically examine (a) FBA practices from the perspective of special education teachers; (b) the variables that influence the manner in which schools conduct FBAs and implement BIPs; and (c) teacher attributes, specifically teacher beliefs and teacher efficacy. The specific research questions that were addressed are:

1. How do special education teachers perceive the effectiveness of the FBA and BIP processes and methods in terms of reducing challenging behavior and increasing positive replacement behaviors of students with high incidence disabilities?

2. What behaviors most frequently prompt a FBA to be conducted?
   a. Is there a relationship between the behaviors that prompt a FBA and demographic variables?

3. What is the relationship between FBA procedures required by the school district and the actual procedures that are used by special education teachers?

4. What are the approaches used to train special education teachers in Virginia to conduct FBA and develop BIP?
   a. What are the training formats and methods used to train special education teachers to conduct FBAs and develop BIPs?
   b. What is the perceived effectiveness of the training that is received in FBA and BIP?
c. In what areas of FBA are special education teachers trained?

5. What are the development and implementation practices for preparing a BIP used by special education teachers?

6. Do special education teacher views of the perceived effectiveness of FBA differ based on teacher beliefs and self-efficacy?
CHAPTER 3. METHODOLOGY

The purpose of this chapter is to present the methods that were used to conduct the study. First, the purpose of the study, research design, and a description of the population using teacher and environmental characteristics are presented. Next, description of the responding sample and a nonrespondent summation are provided. The instrument and survey validity are then discussed followed by the study procedures. Finally, descriptions of the data management system and data analysis are presented.

Purpose of the Study

The purpose of the study was to understand special education teacher perceptions of FBA as it is implemented in public school settings with students with high incidence disabilities who demonstrate chronic challenging behaviors. The following research questions were investigated:

1. How do special education teachers perceive the effectiveness of the FBA and BIP processes and methods in terms of reducing challenging behavior and increasing positive replacement behaviors of students with high incidence disabilities?

2. What behaviors most frequently prompt a FBA to be conducted?
   a. Is there a relationship between the behaviors that prompt a FBA and demographic variables?

3. What is the relationship between FBA procedures required by the school division and the actual procedures that are used by special education teachers?
4. What are the approaches used to train special education teachers in Virginia to conduct FBA and develop BIP?
   a. What are the training formats and methods used to train special education teachers to conduct FBAs and develop BIPs?
   b. What is the perceived effectiveness of the training that is received in FBA and BIP?
   c. In what areas of FBA are special education teachers trained?
5. What are the development and implementation practices for preparing a BIP used by special education teachers?
6. Do special education teacher views of the perceived effectiveness of FBA differ based on teacher beliefs and self-efficacy?

**Research Design**

Due to the nature of the research question the study is a nonexperimental survey design. A self-report survey was implemented to answer the proposed research questions. Self-assessments have been identified as invaluable measures for clarifying and verifying individual skills, competencies, and training needs (Wolfe & Snyder, 1997).

**Instrumentation**

The survey, Functional Behavior Assessment and Behavior Intervention Plans-A Teacher Perspective, was used in this study (see Appendix A). The researcher-developed survey was designed with consideration of current special education legislation, a review of the literature, feedback from an advisory group of national and state researchers/experts in the area of FBA, and existing surveys that measure particular constructs of interest. Instrument development occurred through the following steps. First, the current discipline mandates concerning the use
of FBA in the Individuals with Disabilities Education Act (1997, 2004) were reviewed in conjunction with an in-depth review of the literature. The literature review included the background and development of FBA as a practice in education, current practices of FBA, and future directions of research to support the use of FBA in applied settings with diverse populations.

The current research builds on the previous research of Couvillion et al. (2009) and Katsiyannis et al. (2008); thus, the survey instruments used in the two studies were used to guide the development of the present tool. The instruments used in the two previously named studies did not encompass the scope and depth of the areas in the literature that have been noted as areas in need of extended research and appropriate for the intended sample. In addition to the survey used in Couvillion et al. (2009) and Katsiyannis et al. (2008), survey items were adapted from other measures subsequently identified below to investigate the potential relationships between teacher self-efficacy and beliefs.

The Efficacy in Classroom Management subscale from the Teacher’s Sense of Efficacy Scale (long form) (Tschannen-Moran & Woolfolk Hoy, 2001) and selected items from the BEST in CLASS Teacher Beliefs scale were included in the researcher-designed survey to address teacher efficacy and teacher beliefs as this is an underdeveloped area of research in regards to special education teachers and the practice of FBA. The Teacher’s Sense of Efficacy scale (long form), developed by Tschannen-Moran and Woolfolk Hoy (2001), and consists of 24 questions using a 9-point Likert scale. The measure includes three moderately correlated subscales that were identified through factor analysis, Efficacy in Student Engagement, Efficacy in Instructional Practices, and Efficacy in Classroom Management. To determine subscale scores for each factor the unweighted means of the items that load on each factor were computed
In this study, the subscale of Efficacy in Classroom Management consisting of six questions was selected as it most reliably measured the construct of efficacy related to behavioral factors. FBA is a tool that is used to develop interventions based on functions of behavior which aids and assists teachers with overall classroom management. The Teacher’s Sense of Efficacy scale (long form) was developed following the examination of relationships among existing measures of efficacy including the Rand measure; Guskey’s responsibility for student achievement (RSA); Rose and Medway’s 28-item measure called the Teacher Locus of Control (TLC); the Webb scale; the Ashton Vignettes; Gibson and Dembo’s Teacher Efficacy scale (TES); Bandura’s Teacher Self-Efficacy scale, and Emmer’s Teacher Efficacy for Classroom Management scale (Tschannen-Moran & Woolfolk Hoy, 2001). The measure was examined in three studies resulting in three subscales that were considered reasonably valid and reliable in both the 24-item long form and 12-item short form. The limitations of the other measures were addressed by the Teacher’s Sense of Efficacy scale and represent the richness of teachers’ work and requirements for good teaching (Tschannen-Moran & Woolfolk Hoy, 2001). The Efficacy in Classroom Management subscale is reported reliable by Tschannen-Moran and Woolfolk Hoy (2001) at an alpha of .90, see Table 3. The subscale is reported reliable in the current study at an alpha of .74. Pallant (2006) suggests a scale is reliable at an alpha coefficient of .7.

The BEST in CLASS Teacher's Belief scale was designed to examine teachers’ beliefs in regard to young children’s challenging behavior. The 28-item teacher beliefs survey, designed to measure specific behavior support strategies was adapted from the Behavior Support questionnaire by Stormont, Lewis, and Covington (2005). The Behavior Support questionnaire
Table 3

*Teacher's Sense of Efficacy Scale (Long form)*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSTES</td>
<td>7.1</td>
<td>.94</td>
<td>.94</td>
</tr>
<tr>
<td>Engagement</td>
<td>7.3</td>
<td>1.1</td>
<td>.87</td>
</tr>
<tr>
<td>Instruction</td>
<td>7.3</td>
<td>1.1</td>
<td>.91</td>
</tr>
<tr>
<td>Management</td>
<td>6.7</td>
<td>1.1</td>
<td>.90</td>
</tr>
</tbody>
</table>


consisted of 48 items with an internal reliability score of .92, which indicates high internal consistency. Each item was reviewed to determine if any items negatively influenced the total alpha. The item analysis indicated that no item reduced the alpha of the total scale (Stormont et al., 2005). Information regarding the internal reliability of the 28-item teacher beliefs survey was not available. Eight items drawn from the BEST in CLASS Teacher’s Belief scale were included as a subscale in the survey instrument used in the present study. The 8-item subscale is reported reliable at an alpha of .88. The questions included the use of behavioral expectations in the classroom, positive (praise and incentives) and negative (reprimand) consequences for behavior, the classroom environment, and factors outside of school that influence behavior. Teachers selected responses from a 5-point scale that ranged from *strongly disagree* to *strongly agree*.

The survey in the present study consisted of 45 questions designed to obtain sufficient information to answer the proposed research questions of the study. The survey included closed-form selection items with Likert scale response options and was estimated to have taken approximately 15 minutes to complete. Demographic information was obtained about the districts and teachers completing the survey. Closed-form demographic items provide
categorical information to include the regions in which the school district is located (i.e., Region 1-Region 8); the type and area of licensure held by the teacher; the type of school division (i.e., rural, urban, suburban); current position including length of time in current position, grade level taught, type of classroom (i.e., self-contained, collaborative, inclusion, resource); disability categories served, and type of problem behaviors demonstrated in the classroom. See Appendix A for survey questions and associated response categories.

Survey Validity

The validity of the survey instrument was enhanced by two methods which included the development of the survey items and an advisory group of national and state experts and Virginia special education teachers. First, the survey items were developed based on a thorough review of current literature on the use of FBA in school settings with diverse populations and current federal special education law, specifically the discipline amendments to IDEA 1997. An advisory group of six nationally recognized experts in the area of FBA and behavior disorders received the Web-based survey and provided recommendations regarding the content of the survey to enhance content validity. The following criteria were used to establish expert status for the purpose of this study (a) extensive knowledge of FBA and BIPs; (b) publication in peer reviewed journals within the past 5 years on topics concerning chronic behavior problems, FBA, and/or function based behavioral interventions; and (c) recognized as an expert in the field of disabilities following nominations of individuals meeting the criteria outlined in item b. Following recommendations and revisions of the survey based on expert feedback, a group of three special education teachers currently enrolled at Virginia Commonwealth University were selected to pilot the online survey and provide additional feedback. The criteria for selection to participate in the pilot test included (a) employment as a special education teacher within a
public school system within the last 5 years with a minimum of 6 months experience in the classroom; (b) experience with the FBA process while employed as a special education teacher; and (c) current or previous licensure in high incidence disabilities (E/BD, LD, etc). Individuals included in the pilot test answered the following questions suggested by Fink (2009, p. 44): (a) Is the survey language clear and unbiased? (b) Do the directions and transitions make sense? (c) Are the questions in a logical order? (d) Is the survey too long or difficult to read? Additionally, individuals included in the pilot study were asked if information that should be included in the survey had been overlooked.

**Population**

The primary population of interest in this study was special education teachers currently employed by school divisions in the Commonwealth of Virginia who teach students with disabilities demonstrating chronic behavior problems as well as students whose behavior puts them at risk for failure in school, home, and/or the community. Eligibility criteria to participate in the study included the following: (a) possess a teacher level contract with the school division, (b) be employed by the school division in a special education capacity (special education teacher or behavior specialist), (c) completed at least 6 months experience in current position, (d) served on at least one IEP team for a student with or suspected of a disability, (e) participated in the FBA process within the last 5 years, (f) have an active e-mail account, and (g) hold a current license or provisional license in high incidence disabilities in VA and currently teach students with chronic problem behaviors. All other individuals within the school divisions, including administrative staff, district level personnel, general education teachers, paraprofessionals, and related service providers (i.e., speech-language, occupational therapy) were excluded. Additionally, teachers who reported that they did not teach students with problem behaviors were
also excluded from the study. Participants' demographic characteristics are described according to teacher-related variables and environmental-related factors.

Survey Administration Procedures

Study Methods

The procedures used to execute the proposed study followed the protocol approved by Virginia Commonwealth University Institutional Review Board (IRB). Several procedures were included in the study to positively affect response rate. The procedures employed to enhance response rates are as described in the work of Dillman, Smyth, & Christian (2009). These procedures included (a) multiple contacts and reminders to participants (i.e., introductory invitation, follow-up e-mails), (b) detailed directions for accessing and completing the Web-based survey, (c) assurances of confidential survey responses, and (d) pilot study with recognized experts in the field and special education teachers currently enrolled at VCU.

Initial contact with special education directors in each of the 132 school divisions was conducted through a preliminary inquiry of district interest in participating in the study in January 2011 via e-mail (see Appendix B). The preliminary contact also served to determine within district processes for conducting research. A total of 132 e-mails were sent to the division special education directors outlining the purpose of the study. A request for a response was included in the e-mail. Of the 132 e-mails sent a total of 35 responses were totaled, equaling approximately 27%. The special education director in each division was asked to distribute the survey to special education teachers in the division inviting them to participate in the study. The researcher asked to be notified when the information was forwarded to teachers.

Special education directors were first asked to disperse a pre-notice e-mail to each of the special education teachers 1 week prior to distributing the survey. Cook, Heath, and Thompson
(2000) reported that precontact results in slightly higher and slightly less variable response rates. The following week, the special education directors were asked to electronically distribute a survey recruitment letter to the teachers. This letter included a description of the purpose of the study, an emphasis on the confidential nature of the study, instructions to access the survey online using the Web-based survey tool (i.e., SurveyMonkey.com), and an incentive for participation (see Appendix C). Directors were asked to electronically distribute reminder e-mails twice during data collection. The first reminder was issued to teachers 1 week prior to the end of the survey and then again 3 days prior to the end of the survey. Lastly, directors were asked to disperse a thank-you e-mail to all special education teachers regardless of participation.

Following initial data collection, IRB was resubmitted for approval of methodological additions to the initial study plan. Following a preliminary review of the responses it was determined that an effort to increase response rates in Regions 2, 3, 4, 5 and 6 was needed; therefore, the survey was reopened to the divisions in these regions for a period of 2 weeks. A second invitation was sent to special education directors in the identified regions to be forwarded to the special education teachers.

Included in the initial survey recruitment letter and subsequent follow-up reminders was an online link that participants cut and pasted into their Web browser to connect to the survey webpage located at www.SurveyMonkey.com. Participants were required to create a user name and password to gain access to the survey website. All personal information entered by the participant to establish a user name and password was not accessible to the researcher at any time throughout or following the study. Once a username and password was established the participant had access to the survey and could begin the survey at any time. The act of clicking on the submit survey button at the end of the survey added their responses to the overall survey
database. Following the completion of the survey, the data obtained were collected and analyzed.

As an incentive to complete the survey and increase response rates, each person responding to the survey was able to submit a survey completion form that contained their name and phone number to be placed in a drawing for a $20.00 Visa gift card. A total of five drawings were held 2 weeks following the completion of the study. Winners of the drawing were notified by the telephone number they provided on the survey completion form. Incentives have been shown to increase response rates although the method of delivery impacts the benefit of using an incentive (Dillman et al., 2009, Fink, 2009). Prior to the development of Internet survey capabilities, surveys were conducted through postal mail in which the incentive can be included prior to the completion of the survey. Dillman et al. (2009) identified that providing the incentive prior to the completion of the survey potentially evoked a sense of reciprocal obligation on behalf of the respondent (Dillman et al., 2009). Different methods of incentive delivery have been examined to increase the response rate of electronic surveys; however, the increase in response rates when the incentive is provided electronically is modest when compared to offering no incentive at all. Additionally the benefit of using lotteries or prize drawings has not been demonstrated to significantly increase response rates. Tuten, Galesic, and Bosnjak (2004) reported that promising the result of the prize drawing or lottery immediately upon completion of the survey slightly improves the response rate. The most effective means of using incentives is through postal mail or alongside e-mail contacts. Due to the nature of this study it was not possible to provide the incentive alongside the e-mail contacts as this researcher did not have access to the e-mail distribution lists. Thus in order to offer an incentive the use of a post survey lottery was the most effective means of providing an incentive to the respondents.
Responding Sample

Recruitment and participation in the study was in compliance with the IRB at Virginia Commonwealth University. Due to the confidential nature of the study the researcher was not copied on the correspondence between the special education director and special education teachers. The researcher asked that special education directors let her know when the survey was distributed. This did not occur in enough cases to determine how many directors sent the survey to their special education teachers. In an effort to obtain information to accurately describe the sample of special education teachers who received the survey, the researcher asked special education directors through electronic correspondence in fall 2012 if they did or did not participate in the study and if they did, to indicate the number of special education teachers who received the survey. Of the 134 school divisions in Virginia, 21 special education directors responded with a total of 1,002 special education teachers potentially receiving the survey. Table 4 shows the number of special education directors who responded that they participated in the study by disseminating study materials to special education teachers in their division by region, the number of study respondents who identified that region in the survey, and the potential number of participants reported by the special education director’s that were sent the survey. Special education directors from region 2 did not respond therefore the potential number of survey recipients in region 2 is unknown. The total potential number of special educators who received the survey is therefore underestimated.

Responses to the survey indicated that all eight of the superintendent regions were included in the response set. A total of 373 surveys were completed and used for data analysis. This equates to an approximate response rate of 37% of special education teachers from the participating divisions.
Table 4

Survey Responses

<table>
<thead>
<tr>
<th>Region</th>
<th>Responding special education directors</th>
<th>Responses on survey</th>
<th>Potential no. who received survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>63</td>
<td>255</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>22</td>
<td>Unknown</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>32</td>
<td>122</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>34</td>
<td>73</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>41</td>
<td>119</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>38</td>
<td>206</td>
</tr>
<tr>
<td>7</td>
<td>5</td>
<td>52</td>
<td>189</td>
</tr>
<tr>
<td>8</td>
<td>2</td>
<td>68</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>373</td>
<td>1,002</td>
</tr>
</tbody>
</table>

Characteristics of responding sample. The majority of respondents (85%) reported being fully licensed with a standard teaching license issued by the Virginia Department of Education. Others (7%) are currently working toward full licensure on a provisional teaching license. Twenty-eight (7.5%) survey respondents did not provide information regarding licensure. In regard to type of degree, 44% of the responding sample reported possessing a Masters degree in Special Education, 23% indicated that they held a bachelor degree in the field of education, and 9% held a Bachelor degree in another field. The respondents were asked in the survey to identify their current position in the school division.

The responding sample tended to be experienced special education teachers. Over one-third (36%) had been in their current position for 10 or more years while only 4% had been in their current position for less than a year. The larger number of respondents reported working at the elementary level, kindergarten through fifth grade (41%), while an almost equal number reported working at the middle school (27%) or high school level (24%). Less than 10% reported working with prekindergarten age students. Additionally, more than half of the
participating teachers reported teaching in a self-contained classroom (49%) while almost equal numbers were reported for collaborative, inclusion, and resource settings.

Respondents worked with a very heterogeneous population of students. Teachers reported working mostly with students with the disability categories of learning disability (LD) (68%) and other health impaired (OHI) (67%). Emotional behavior disorders (EB/D) (55%), intellectual disabilities (ID) (49%), and autism spectrum disorders (ASD) (53%) were also closely ranked.

**Environmental-related characteristics.** Respondents were not asked to reveal the school division in which they are employed but were asked to indicate which superintendent region the school division is located. Table 5 summarizes the responses.

Table 5

<table>
<thead>
<tr>
<th>Superintendent Region</th>
<th>Responses</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>63</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>31</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>34</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>41</td>
<td>11</td>
</tr>
<tr>
<td>6</td>
<td>38</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>52</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>68</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>373</td>
<td>100</td>
</tr>
</tbody>
</table>

Respondents were asked to identify the school division in which they taught as rural, suburban, or urban. Fifty-nine percent of respondents indicated that their school division would be considered rural, 14% responded with suburban, and 21% identified their school division as urban. The remaining 6% did not respond to the question.
Nonrespondent Summation

It is unknown how many special education teachers who met the participation requirements of the study chose not to participate or did not receive the survey. A total of 479 were available for analysis; however, examination of the data revealed 69 (14%) survey respondents who began but completed less than 25% of the survey. Respondents who answered less than 25% of the survey when removed did not significantly impact the findings for the small number of questions for which they provided an answer therefore it was determined that the removal of these respondents would not negatively impact or alter the findings. An additional 36 (8%) respondents were removed from the data set as they did not meet the requirements for participation in the study. Thirty-three of these individuals self-identified as other staff, which included general education and administrative staff and three self-identified that they did not have experience with FBA. A total of 106 participants were removed from the data set prior to analysis resulting in a total of 373 participant responses retained for analysis. The overall ability to generalize the results of the survey to the state or nation is limited based on the number of respondents compared to the study population.

Data Management

All data were exported from SurveyMonkey® on a secure Web server administered by Virginia Commonwealth University Office of Technology Services. Data were analyzed using the Statistical Package for Social Sciences 21® (SPSS 21).

Prior to analysis all data were examined to ensure the participants met the inclusion criteria for the study and incomplete surveys were identified through visual inspection (McMillan & Schumacher, 2006). Surveys that were less than 25% complete were removed from the data set (n = 69). Descriptive statistics were conducted to determine if the 69
participants who completed less than 25% of the survey significantly differed from the remaining participants. It was determined following a review of the analysis that the 69 participants did not differ from the remaining participants in terms of region, use of FBA, teaching experience and certification, and type of students served. As a result, it was determined that these partially completed surveys could be removed from the data set without negatively affecting the findings of the study. The removal of missing data was necessary in order to not inflate or deflate averages due to missing data. The analysis was conducted on only the survey data that were fully completed. Additional surveys (n = 36) were removed for failure to meet the conditions for participation related to type of degree and type of position within their school divisions.

The survey completion form was maintained separately from the survey responses so it was not possible to identify specific individuals. The only identifying information that was requested on the survey completion form was the individual’s name and contact phone number. School name and region identification was excluded from the form to further prevent linking responses to participants. The survey completion forms were maintained in a locked filing cabinet at all times.

**Data Analysis**

Specific research questions were addressed by the following analyses as presented in Table 6.
Table 6

*Research Questions and Data Analysis Procedure*

<table>
<thead>
<tr>
<th>Research question</th>
<th>Data analysis procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How do special education teachers perceive the effectiveness of the FBA and BIP processes and methods in terms of reducing challenging behavior and increasing positive replacement behaviors of students with high incidence disabilities?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td></td>
<td>One sample $t$-test</td>
</tr>
<tr>
<td>2. What behaviors most frequently prompt a FBA to be conducted?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>a. What is the relationship between the behaviors that prompt a FBA and demographic variables?</td>
<td>Chi-square</td>
</tr>
<tr>
<td>3. What is the relationship between FBA procedures required by the school division and the actual procedures that are used by special education teachers?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td></td>
<td>One sample $t$-test</td>
</tr>
<tr>
<td>4. What are the approaches used to train special education teachers in Virginia to conduct FBA and develop BIP?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>a. What are the training formats and methods used to train special education teachers to conduct FBAs and develop BIPs?</td>
<td></td>
</tr>
<tr>
<td>b. What is the perceived effectiveness of the training that is received in FBA and BIP?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>c. In what areas of FBA are special education teachers trained?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>5. What are the development and implementation practices for preparing a BIP used by special education teachers?</td>
<td>Descriptive statistics</td>
</tr>
<tr>
<td>6. Are teacher beliefs and self-efficacy related to the perceived effectiveness of FBA?</td>
<td>Correlations</td>
</tr>
</tbody>
</table>
CHAPTER 4. FINDINGS

This chapter describes the results of the research study. Analyses of the research questions are presented. First, special education teacher perceived effectiveness of FBA as a behavior change agent is examined. Second, the relationship between behaviors that prompt FBA and selected demographic variables are presented followed by an examination of FBA procedures. Next, the approaches used to train special education teachers are examined including a review of training formats and methods, the perceived effectiveness of training, and training in the content areas of FBA. Following the examination of training in FBA, the practices for development and implementation of a BIP are presented. Finally, the relationship between teacher beliefs and self-efficacy and the perceived effectiveness of FBA are examined.

Analysis of the Research Questions

The following section provides a summary of the results used to address the research questions developed for the study.

Perceived Effectiveness of FBA and BIP

Two questions in the survey were designed to determine the perceived effectiveness of FBA and BIP by special education teachers in Virginia. First, respondents were asked to rate the overall effectiveness of the FBA process in reducing challenging behaviors of students on a scale of 1 to 5, with 1 being not effective and 5 being extremely effective. All 373 respondents in the survey answered the question with 29 (8%) indicating a rating of 1 (not effective), 257 (69%)
rated this item as 2 or 3 (somewhat to moderately effective), and 87 (23%) rated the item a 4 or 5 (very to extremely effective).

A one-sample t-test was conducted to compare the group mean to an expected value of 2.5, which was the midpoint of the scale (moderately effective). The midpoint of the scale was selected in order to compare the results of the present study to the findings by Katsiyannis et al. (2008) who also used the midpoint of the scale to compare group means. The test yielded a group mean of 2.78 and a t-value of 5.53, which was not significantly different from the expected value of 2.5. This finding indicates that survey respondents perceive FBA procedures as moderately effective in reducing challenging behaviors of students.

Respondents were also asked to rate the overall effectiveness of current FBA methods in increasing positive replacement behaviors and improving learning/academic achievement in public schools on a scale of 1 to 5, with 1 being not effective and 5 being extremely effective. One person (.03%) did not respond to the question. Of the 372 respondents, 36 (10%) indicated a rating of 1 (not effective), 276 (74%) indicated a rating of 2 or 3 (somewhat to moderately effective), and 60 (16%) rated the item a 4 or 5 (very to extremely effective). A one sample t-test was conducted to compare the group mean to an expected value of 2.5, which was the midpoint of the scale (moderately effective). The test yielded a group mean of 2.63 and a t-value of 2.66, which was not significantly different from the expected value of 2.5. This finding indicates that respondents evaluated FBA methods as moderately effective in improving learning/academic achievement.

Inferential statistics were used to determine if there are differences between the demographic variables of region, type of division, time in current position, grade level taught, type of classroom, type of disability taught, level of behavioral intensity in the classroom, current
educational status and a combined scaled score of perceived effectiveness of FBA. The results of the chi-square tests are shown in Table 7.

Table 7

*Chi-Square Results of Demographic Variables With Perceived Effectiveness*

<table>
<thead>
<tr>
<th>Demographic variable</th>
<th>X²</th>
<th>df</th>
<th>N</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
<td>56.52</td>
<td>56</td>
<td>348</td>
<td>.46</td>
</tr>
<tr>
<td>Type of division</td>
<td>14.62</td>
<td>16</td>
<td>348</td>
<td>.55</td>
</tr>
<tr>
<td>Time in current position</td>
<td>27.98</td>
<td>24</td>
<td>348</td>
<td>.26</td>
</tr>
<tr>
<td>Grade level taught</td>
<td>18.29</td>
<td>24</td>
<td>346</td>
<td>.79</td>
</tr>
<tr>
<td>Type of classroom</td>
<td>44.60</td>
<td>24</td>
<td>348</td>
<td>.01*</td>
</tr>
<tr>
<td>Disability taught:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD</td>
<td>15.29</td>
<td>8</td>
<td>372</td>
<td>.05*</td>
</tr>
<tr>
<td>E/BD</td>
<td>12.45</td>
<td>8</td>
<td>372</td>
<td>.13</td>
</tr>
<tr>
<td>ID</td>
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<tr>
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<td>18.31</td>
<td>8</td>
<td>372</td>
<td>.02*</td>
</tr>
<tr>
<td>SD</td>
<td>8.23</td>
<td>8</td>
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<td>.41</td>
</tr>
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<td>ASD</td>
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<td>372</td>
<td>.06</td>
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<td>HI</td>
<td>6.90</td>
<td>8</td>
<td>372</td>
<td>.55</td>
</tr>
<tr>
<td>SI</td>
<td>11.24</td>
<td>8</td>
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<td>.19</td>
</tr>
<tr>
<td>VI</td>
<td>7.76</td>
<td>8</td>
<td>372</td>
<td>.46</td>
</tr>
<tr>
<td>Other</td>
<td>4.67</td>
<td>8</td>
<td>372</td>
<td>.79</td>
</tr>
<tr>
<td>Level of behavioral intensity</td>
<td>10.76</td>
<td>24</td>
<td>346</td>
<td>.99</td>
</tr>
<tr>
<td>Current educational status</td>
<td>36.19</td>
<td>40</td>
<td>348</td>
<td>.64</td>
</tr>
</tbody>
</table>

*Correlation is significant at the .05 level (2-tailed).

The results of chi-square indicate a statistically significant difference at the p < .05 level between type of classroom taught ($X^2 (24, N = 348) = 44.60, p = .01$) and the perceived effectiveness of FBA. Those respondents who teach in a self-contained classroom (n = 109, 31%) find FBA to be more effective than those respondents who teach in a collaborative (N = 72,
21%), inclusion (N = 74, 21%), or resource classroom (N = 93, 27%). Also, a statistically significant difference was found for those respondents who teach students with other health impaired (X² (8, N = 372) = 18.31, p = .02) while a borderline statistically significant difference was found for those respondents who teach students with learning disabilities (X² (8, N = 372) = 15.29, p = .05) and the perceived effectiveness of FBA, as compared to those respondents who teach students with other disabilities. Significantly larger percentages of responding special educators who teach students with OHI (27%), LD (26%), and E/BD (21%) found FBA to be very to extremely effective compared to responding special educators who teach students labeled with other disability categories.

Behaviors That Prompt FBA

Respondents were asked to select the problem behavior that most likely led to an FBA being conducted. Table 8 identifies the behaviors in rank order from greatest likelihood to least likelihood of leading to an FBA being conducted. Two behaviors stood out as the predominant reasons that FBAs were conducted. Chronic problem behavior and physically aggressive behavior accounted for 86% of all behaviors leading to FBAs. Behaviors least likely to lead to a FBA were social isolation/withdrawal and property destruction (< 1%), self-abuse and weapon related (1%) and truancy and drug related (2%).

Inferential statistics were conducted to determine if demographic variables had an impact on the type of behavior that was selected as prompting an FBA. A significant difference at the p < .05 level was found for three demographic variables. Differences between the eight regions (X² (56, N = 348) = 81.75, p = .01) were found. The results indicate that responding special educators in regions 1, 8, and 7 are more likely to conduct FBA due to chronic problem behavior.
and physically aggressive behaviors than the remaining five regions. The differences in region are likely due to the higher total of respondents for regions 1, 8, and 7.

Table 8

**Behaviors That Prompt FBA**

<table>
<thead>
<tr>
<th>Behavior</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic problem behaviors</td>
<td>44</td>
<td>163</td>
</tr>
<tr>
<td>Physically aggressive behaviors</td>
<td>42</td>
<td>154</td>
</tr>
<tr>
<td>Verbally aggressive behaviors</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>Truancy</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Drug related</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Self-abuse</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Weapon related</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Property destruction</td>
<td>&lt;1</td>
<td>3</td>
</tr>
<tr>
<td>Social isolation/withdrawal</td>
<td>&lt;1</td>
<td>2</td>
</tr>
</tbody>
</table>

Grade level taught ($X^2$ (24, $N = 346$) = 79, $p = .00$) also showed significant differences. Significant differences resulted among grade levels were demonstrated. Physically aggressive behaviors were identified most by responding elementary special education teachers as prompting FBA. Responding elementary school special educators, as well as high school special educators, were also more likely to conduct an FBA in the presence of chronic problem behaviors.

Finally, significant differences exist between the type of disability and behaviors that prompt FBA. Students with LD ($X^2$ (8, $N = 372$) = 26.88, $p = .00$), E/BD ($X^2$ (8, $N = 372$) = 16.72, $p = .03$), SD ($X^2$ (8, $N = 372$) = 16.24, $p = .04$) and OHI ($X^2$ (8, $N = 372$) = 15.27, $p = .05$) are more likely to be given a FBA for chronic problem behaviors and physically aggressive behaviors. Results of the chi-square analysis are in Table 9.

In summary, two broad categories of behaviors - chronic problem behaviors and physically aggressive behaviors - account for the large majority instances that led to the initiation
Table 9

**Chi-Square Results of Demographic Variables With Behaviors That Prompt FBA**

<table>
<thead>
<tr>
<th>Demographic variable</th>
<th>X</th>
<th>df</th>
<th>N</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region</td>
<td>81.75</td>
<td>56</td>
<td>348</td>
<td>.01*</td>
</tr>
<tr>
<td>Type of division</td>
<td>18.73</td>
<td>16</td>
<td>348</td>
<td>.28</td>
</tr>
<tr>
<td>Time in current position</td>
<td>1.44</td>
<td>8</td>
<td>348</td>
<td>.99</td>
</tr>
<tr>
<td>Grade level taught</td>
<td>79</td>
<td>24</td>
<td>346</td>
<td>.00*</td>
</tr>
<tr>
<td>Type of classroom</td>
<td>26.69</td>
<td>24</td>
<td>348</td>
<td>.32</td>
</tr>
<tr>
<td>Disability taught:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD</td>
<td>26.88</td>
<td>8</td>
<td>372</td>
<td>.00*</td>
</tr>
<tr>
<td>E/BD</td>
<td>16.72</td>
<td>8</td>
<td>372</td>
<td>.03*</td>
</tr>
<tr>
<td>ID</td>
<td>5.15</td>
<td>8</td>
<td>372</td>
<td>.74</td>
</tr>
<tr>
<td>OHI</td>
<td>12.23</td>
<td>8</td>
<td>372</td>
<td>.14</td>
</tr>
<tr>
<td>SD</td>
<td>16.24</td>
<td>8</td>
<td>372</td>
<td>.04*</td>
</tr>
<tr>
<td>ASD</td>
<td>9.0</td>
<td>8</td>
<td>372</td>
<td>.35</td>
</tr>
<tr>
<td>HI</td>
<td>8.21</td>
<td>8</td>
<td>372</td>
<td>.41</td>
</tr>
<tr>
<td>SI</td>
<td>9.93</td>
<td>8</td>
<td>372</td>
<td>.27</td>
</tr>
<tr>
<td>VI</td>
<td>5.85</td>
<td>8</td>
<td>372</td>
<td>.66</td>
</tr>
<tr>
<td>Other</td>
<td>15.27</td>
<td>8</td>
<td>372</td>
<td>.05*</td>
</tr>
<tr>
<td>Level of behavioral intensity</td>
<td>28.11</td>
<td>24</td>
<td>346</td>
<td>.26</td>
</tr>
<tr>
<td>Current educational status</td>
<td>39.44</td>
<td>40</td>
<td>348</td>
<td>.50</td>
</tr>
</tbody>
</table>

*Correlation is significant at the .05 level (2-tailed).

of a FBA. Differences were found by region, grade level and disability category. The broad nature of the two categories accounting for 86% of the occurrences may indicate a need to further refine these categories for greater sensitivity.

**FBA Procedures**

Three survey questions addressed the procedures required by school divisions and the procedures and instruments identified by responding special education teachers as being used to
conduct a FBA. First, respondents were asked to identify the procedures that are required as part of the division’s process for conducting FBA. Validating the hypotheses prior to intervention was the lowest reported procedure at 53%. Operationally defining behaviors (82%) and specifying the most and least likely times the behavior occurs (82%) were rated as the two procedures most commonly used within school divisions in the Commonwealth by the responding sample. Table 10 displays the FBA procedures required by the school division to conduct FBA.

Table 10

<table>
<thead>
<tr>
<th>Procedure</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operationally defining behaviors</td>
<td>82</td>
<td>306</td>
</tr>
<tr>
<td>Specifying the most and least likely times the behavior occurs</td>
<td>82</td>
<td>304</td>
</tr>
<tr>
<td>Identifying the consequences that follow the behavior</td>
<td>79</td>
<td>293</td>
</tr>
<tr>
<td>Developing hypotheses about the functions of the behavior</td>
<td>76</td>
<td>284</td>
</tr>
<tr>
<td>Validating hypotheses prior to intervention</td>
<td>53</td>
<td>197</td>
</tr>
</tbody>
</table>

Respondents also indicated the instruments used within the school division to conduct FBA. As shown in the Table 11, responses revealed that the most commonly used instrument among school divisions in the Commonwealth is direct observation (93%) followed by interviews (84%).

Table 11

<table>
<thead>
<tr>
<th>Instruments</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct observation</td>
<td>93</td>
<td>346</td>
</tr>
<tr>
<td>Interviews</td>
<td>84</td>
<td>313</td>
</tr>
<tr>
<td>Functional analysis</td>
<td>67</td>
<td>251</td>
</tr>
<tr>
<td>Rating scales</td>
<td>56</td>
<td>209</td>
</tr>
<tr>
<td>Structural analysis</td>
<td>36</td>
<td>133</td>
</tr>
</tbody>
</table>
Respondents identified the FBA procedures they use when conducting a FBA on a scale of 1 to 5, with 1 being never and 5 being always using a check all that apply approach. The choice, don’t know, was removed from the scale during analysis of the data resulting in the removal of 116 responses. The “don’t know” choice was determined to not contribute to the data regarding the FBA procedures that are used by special educators when working with students with disabilities. Frequencies are displayed in the Table 12.

Table 12

*Special Educators Reported Use of FBA Procedures*

<table>
<thead>
<tr>
<th>FBA procedures</th>
<th>% Never</th>
<th>% Rarely</th>
<th>% Sometimes</th>
<th>% Often</th>
<th>% Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student interviews (n = 358)</td>
<td>10(38)</td>
<td>10(37)</td>
<td>25(93)</td>
<td>24(89)</td>
<td>27(101)</td>
</tr>
<tr>
<td>Teacher interviews (n = 361)</td>
<td>5(17)</td>
<td>4(13)</td>
<td>15(55)</td>
<td>27(99)</td>
<td>48(177)</td>
</tr>
<tr>
<td>Parent interviews (n = 353)</td>
<td>4(16)</td>
<td>6(24)</td>
<td>23(87)</td>
<td>28(105)</td>
<td>32(121)</td>
</tr>
<tr>
<td>Rating scales (n = 345)</td>
<td>15(57)</td>
<td>14(52)</td>
<td>24(90)</td>
<td>21(78)</td>
<td>18(68)</td>
</tr>
<tr>
<td>Informal direct observation (n = 365)</td>
<td>3(11)</td>
<td>5(18)</td>
<td>15(57)</td>
<td>28(103)</td>
<td>47(176)</td>
</tr>
<tr>
<td>Structured direct observation (n = 350)</td>
<td>13(47)</td>
<td>11(39)</td>
<td>21(79)</td>
<td>23(86)</td>
<td>27(99)</td>
</tr>
<tr>
<td>Functional analysis (n = 345)</td>
<td>10(37)</td>
<td>10(38)</td>
<td>23(86)</td>
<td>23(86)</td>
<td>26(98)</td>
</tr>
<tr>
<td>Manipulation of instructional variables (n = 341)</td>
<td>7(25)</td>
<td>9(35)</td>
<td>24(90)</td>
<td>28(105)</td>
<td>23(86)</td>
</tr>
</tbody>
</table>
To test the significances of the means, a one-sample *t*-test was conducted to compare the mean of each procedure to an expected value of 2.5, which was the midpoint of the rating scale (i.e., sometimes). Means and results are included in Table 13. All procedures were identified as being used significantly more than the midpoint (i.e., sometimes). Informal direct observation and teacher interviews demonstrated the highest means indicating that these two procedures are used more frequently than other procedures.

### Table 13

**One Sample t-Test Results for FBA Procedures**

<table>
<thead>
<tr>
<th>FBA procedure</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th><em>t</em></th>
<th>df</th>
<th><em>p</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student interview</td>
<td>368</td>
<td>3.57</td>
<td>1.34</td>
<td>15.30</td>
<td>367</td>
<td>.00</td>
</tr>
<tr>
<td>Teacher interview</td>
<td>369</td>
<td>4.17</td>
<td>1.12</td>
<td>28.65</td>
<td>368</td>
<td>.00</td>
</tr>
<tr>
<td>Parent interview</td>
<td>363</td>
<td>3.88</td>
<td>1.16</td>
<td>22.83</td>
<td>362</td>
<td>.00</td>
</tr>
<tr>
<td>Rating scales</td>
<td>366</td>
<td>3.30</td>
<td>1.47</td>
<td>10.48</td>
<td>365</td>
<td>.00</td>
</tr>
<tr>
<td>Informal direct observation</td>
<td>372</td>
<td>4.17</td>
<td>1.07</td>
<td>30.27</td>
<td>371</td>
<td>.00</td>
</tr>
<tr>
<td>Structured direct observation</td>
<td>367</td>
<td>3.55</td>
<td>1.43</td>
<td>14.05</td>
<td>366</td>
<td>.00</td>
</tr>
<tr>
<td>Functional analysis</td>
<td>366</td>
<td>3.64</td>
<td>1.39</td>
<td>15.65</td>
<td>365</td>
<td>.00</td>
</tr>
<tr>
<td>Manipulation of instruction variables</td>
<td>363</td>
<td>3.71</td>
<td>1.29</td>
<td>17.94</td>
<td>362</td>
<td>.00</td>
</tr>
</tbody>
</table>

**Training**

**Training formats and methods.** Respondents identified the types of training they have received in FBA. The type of training teachers reported receiving was divided evenly between pre-service and in-service formats. A small number of respondents (15%) indicated that they
had not received any training in FBA. When type of training was correlated with time in current position it was determined that responding special educators in their current position for 2-5 years (20%) received their training in pre-service and significantly differed from teachers who had taught for 6 months to 1 year and 6 plus years ($X^2 (3, N = 349) = 32.70, p = .00$). Responding teachers with 10+ years of service reported that they had received training in FBA through in-service provided by the school division (23%) which statistically differed from other teachers with less than 10 years of service ($X^2 (3, N = 349) = 17.53, p = .00$). Table 14 displays the results of types of training in FBA.

Table 14

<table>
<thead>
<tr>
<th>Type of training</th>
<th>%</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-service</td>
<td>48</td>
<td>168</td>
</tr>
<tr>
<td>In-service (provided by school division)</td>
<td>48</td>
<td>168</td>
</tr>
<tr>
<td>Conference</td>
<td>27</td>
<td>93</td>
</tr>
<tr>
<td>In-service (provided by agency other than school division)</td>
<td>22</td>
<td>76</td>
</tr>
<tr>
<td>No training</td>
<td>15</td>
<td>54</td>
</tr>
<tr>
<td>Intensive training</td>
<td>6</td>
<td>21</td>
</tr>
<tr>
<td>No response</td>
<td>6</td>
<td>24</td>
</tr>
</tbody>
</table>

To further examine teacher training related to FBA, respondents were asked to identify if training was delivered to individuals or teams. Forty-nine percent identified that training was delivered to individuals, while 51% identified that training was delivered to teams. Seventy-three percent of respondents indicated that training is more effective when delivered to teams, while 27% think training is more effective when delivered to individuals.

Training was primarily delivered to the responding special education teachers by college professors and researchers (35%) and school division personnel (34%). Behavior consultants or other professionals who are not employed by the school division accounted for 22% of the
training delivery. The Virginia Department of Education was identified as having provided training in FBA to 9% of respondents. The majority of respondents (53%) identified receiving training in FBA through a didactic format. Only 19% reported receiving training with follow-up support, which is the method of training described in the literature as being most effective. The frequencies for the format used to train the responding special educators in Virginia are shown in Table 15.

Table 15

*Training Formats*

<table>
<thead>
<tr>
<th>Formats</th>
<th>% of respondents</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didactic</td>
<td>53</td>
<td>207</td>
</tr>
<tr>
<td>Didactic with hands-on experiences</td>
<td>28</td>
<td>120</td>
</tr>
<tr>
<td>Training with follow-up support provided</td>
<td>19</td>
<td>88</td>
</tr>
</tbody>
</table>

Respondents were also asked to indicate the type of training format that they perceive as being the most effective. Of the different formats for training, which include didactic, didactic with hands-on experience, or training with follow-up support, only 3% of participants identified didactic as the most effective method for training. Sixty-five percent of respondents reported that training with follow-up support provided was most effective, while 32% indicated that didactic with hands-on experiences was the most effective training format. The frequencies are presented in Table 16.

Table 16

*Training Formats Perceived as Effective*

<table>
<thead>
<tr>
<th>Format</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Didactic</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Didactic with hands-on experience</td>
<td>32</td>
<td>120</td>
</tr>
<tr>
<td>Training with follow-up support provided</td>
<td>65</td>
<td>242</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>373</td>
</tr>
</tbody>
</table>
In summary, the results indicated a direct correlation between respondents’ ratings of training effectiveness and their perceptions of the overall effectiveness of FBA. A sizable number, approximately one-third of respondents, indicated that they had not received training on the major components of FBA. A wide variety of school and nonschool personnel are delivering FBA training across all regions. Preferred training methods reported by respondents included didactic instruction followed either by hands-on experiences or follow-up support.

**Perceived effectiveness of the training.** Of the training respondents received in conducting a FBA (excluding respondents that reported not receiving any training), 4% identified the training as extremely effective. Fifty-four percent rated the training as being moderately to very effective, and 26% rated the training as only somewhat effective. Fourteen percent of respondents found the training to not be effective.

Training received in the design of BIPs yields similar results with only 3% finding the training to be extremely effective. Fifty-two percent found the training to be moderately to very effective, while 28% found the training to be somewhat effective. Thirteen percent found the training they received in developing a BIP as not effective.

A Spearman rho correlation coefficient was calculated to determine if there was a relationship between the perceived effectiveness of training and the perceived effectiveness of FBA. A significant moderate strength correlation ($r = .49$) was found at the $p < .01$ level indicating that the more effective special education teachers viewed the training they have received, the higher they rated the overall effectiveness of FBA.

**Areas of training.** Respondents indicated the areas of FBA in which they have received training and identified areas in which they believe more training is needed to increase their ability to conduct an FBA and design a BIP. The results are provided in Table 17.
Approximately 60% to 70% of all respondents received training in most of the specific content areas. The lowest rated (34%) content area focused on procedures to validate the hypotheses. Findings indicated that approximately two-thirds of individuals have received some training in the various components of FBA, while about one-third of respondents had received no training in the various FBA skill areas.

Respondents identified that more training is needed in the areas of developing function-based intervention (57%), developing behavior intervention plans from FBA data (56%), methods for validating the hypotheses prior to intervention (49%), training in the use of direct and indirect methods of assessment (49%), and collaborative teaming (49%). Additionally, evaluating the impact of the intervention (46%) and collecting treatment implementation data (42%) were also rated highly as areas in which further training is necessary. The two lowest rated needs for training were: (a) identifying the most and least likely times the behavior occurs (21%), and (b) operationally defining the behavior and identifying the consequences that

---

**Table 17**

*Areas of Training Received*

<table>
<thead>
<tr>
<th>Skill area of FBA</th>
<th>% received</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying the most and least likely times behavior occurs (n = 349)</td>
<td>69</td>
<td>258</td>
</tr>
<tr>
<td>Operationally defining behaviors (n = 349)</td>
<td>66</td>
<td>246</td>
</tr>
<tr>
<td>Identifying consequences that follow the behavior (n = 348)</td>
<td>65</td>
<td>243</td>
</tr>
<tr>
<td>Developing behavior intervention plans from the FBA (n = 348)</td>
<td>65</td>
<td>241</td>
</tr>
<tr>
<td>Developing hypotheses about the functions of the behavior (n = 348)</td>
<td>58</td>
<td>216</td>
</tr>
<tr>
<td>Validating the hypotheses prior to intervention (n = 348)</td>
<td>34</td>
<td>127</td>
</tr>
<tr>
<td>Not applicable</td>
<td>17</td>
<td>65</td>
</tr>
</tbody>
</table>
maintain the behavior (34%). Thirty-seven percent identified the area of developing hypotheses about the functions of the behavior as an area for additional training.

**Development and Implementation of BIP**

Three items on the survey address the extent to which data obtained through FBA was used to drive the development of a BIP. Over three-fourths of respondents (76%) reported that information from the FBA was often or always typically used to develop the BIP. Twenty-four percent reported that the information was never, rarely, or sometimes used to develop the BIP. Following the conclusion of FBA and development of a BIP, 40% believed that the special education teacher is responsible for the implementation of the intervention while 28% believed it is the responsibility of the general education teacher. The remaining 32% identified the administrator, school psychologist, behavior consultant/specialist, or university staff as being responsible for implementing the intervention.

Following the completion of FBA and implementation of the intervention, the procedure used by most responding special education teachers to determine if the intervention was implemented as planned in the BIP was formal and/or informal observation (79%). Team meetings were identified as being used by only 51% of respondents and 8% reported using no procedure at all (see Table 18).

**Table 18**

**Procedures**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal and/or informal observation</td>
<td>79</td>
<td>295</td>
</tr>
<tr>
<td>Team meetings</td>
<td>51</td>
<td>191</td>
</tr>
<tr>
<td>No procedure</td>
<td>8</td>
<td>30</td>
</tr>
</tbody>
</table>
Thirty-three percent of responding special education teachers reported that the team meets to review and revise the BIP one time per grading period, while 14% reported meeting on a monthly basis. Twenty-one percent reported that the team never meets to review or revise the BIP after the interventions have been implemented in the classroom. Table 19 shows the frequency with which responding special education teachers report meeting to review and revise the BIP following implementation of intervention.

Table 19

<table>
<thead>
<tr>
<th>Review and revise BIP</th>
<th>%</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>One time per grading period</td>
<td>33</td>
<td>123</td>
</tr>
<tr>
<td>Never</td>
<td>21</td>
<td>79</td>
</tr>
<tr>
<td>Monthly</td>
<td>14</td>
<td>53</td>
</tr>
<tr>
<td>More than one time per grading period</td>
<td>11</td>
<td>42</td>
</tr>
<tr>
<td>Weekly</td>
<td>9</td>
<td>32</td>
</tr>
<tr>
<td>Biweekly</td>
<td>7</td>
<td>27</td>
</tr>
<tr>
<td>Bimonthly</td>
<td>5</td>
<td>17</td>
</tr>
</tbody>
</table>

**Teacher Beliefs and Self-Efficacy**

**Teacher beliefs.** The eight items of the BEST in CLASS Teacher's Belief scale were subjected to principal components analysis (PCA). PCA was conducted to determine if the eight items drawn from the 28-item BEST in CLASS Teacher’s Belief scale correlated to create a valid subscale. Prior to performing PCA the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .9, exceeding the recommended value of .6 (Pallant, 2006) and the Bartlett’s test of sphericity reached statistical significance, supporting the factorability of the correlation matrix.
Principal components analysis revealed the presence of one component with eigenvalues exceeding 1, explaining 60% of the variance respectively. An inspection of the screeplot revealed a clear break after the first component. The results of parallel analysis (see Table 20) showed the one component with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (8 variables x 373 respondents). Further examination of the component was not conducted using varimax and oblimin rotations due to only one component being extracted.

Table 20

*Comparison of Eigenvalues From PCA and Parallel Analysis*

<table>
<thead>
<tr>
<th>Component</th>
<th>Actual eigenvalue from PCA</th>
<th>Parallel Analysis</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.793</td>
<td>1.219</td>
<td>accept</td>
</tr>
</tbody>
</table>

**Self-efficacy.** The Efficacy in Classroom Management subscale from the Teacher’s Sense of Efficacy scale (long form) (Tschannen-Moran & Woolfolk Hoy, 2001) was used to assess teacher self-efficacy in the domain of classroom management. This domain most closely measured efficacy in regard to student behavior. The subscale has been determined by prior research to be valid and reliable at an alpha of .90 (Tschannen-Moran & Woolfolk Hoy, 2001). The subscale demonstrated an alpha of .74 in the current study. Pallant (2006) suggests that an alpha coefficient of a scale should be above .7.

**Correlations.** The relationship between the scaled score of teacher self-efficacy in the dimension of classroom management and scaled score of perceived effectiveness of FBA was investigated using Pearson product-moment correlation coefficient. The scaled score of perceived effectiveness of FBA reported an alpha of .88. There was a positive but weak
correlation between the two variables \( r = .15, n = 350, p = .01 \), with high levels of teacher self-efficacy associated with increased views of perceived effectiveness of FBA in public schools.

A Pearson product-moment correlation coefficient was conducted to examine the relationship between perceived effectiveness and the 8-item subscale created from the BEST in CLASS Teacher's Belief scale. A correlation was not found between the two scales however weak statistically significant correlations were reported between the perceived effectiveness scale and three individual items of the 8-item Teacher’s Belief scale. A weak correlation can be statistically significant if the sample size is large enough. Oller (2006) reports that even low correlations that account for little variation do not necessarily mean that the two variables are unrelated or weakly related in reality. A positive weak correlation resulted between the views of perceived effectiveness of FBA and the belief that teachers should praise children when they engage in appropriate behavior \( r = .12, n = 364, p = .02 \) and the belief that teachers should provide incentives to encourage children to engage in appropriate behavior \( r = .18, n = 364, p = .00 \). These findings indicate that teachers who believe that children should be praised or receive incentives for engaging in appropriate behavior are associated with viewing FBA as more effective than teachers who do not hold these beliefs. Additionally, a weak negative correlation was found between the perceived effectiveness of FBA and the belief that teachers should reprimand children when they engage in problem behaviors \( r = -.15, n = 363, p = .01 \). This finding suggests that special education teachers who find FBA effective are less likely to support using reprimands. Table 21 shows the results of the Pearson product-moment correlation coefficient.
Table 21

*Pearson Product-Moment Correlations Between Perceived Effectiveness and Beliefs*

<table>
<thead>
<tr>
<th>Item</th>
<th>( r )</th>
<th>( N )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers should use clear behavioral expectations and routines for specific activities and review them frequently with students.</td>
<td>.09</td>
<td>364</td>
<td>.09</td>
</tr>
<tr>
<td>Teachers should have consistency in expectations for all the students' behavior in the classroom.</td>
<td>.07</td>
<td>363</td>
<td>.20</td>
</tr>
<tr>
<td>Teachers should use a clear set of consequences for students when they violate classroom rules.</td>
<td>-.01</td>
<td>360</td>
<td>.85</td>
</tr>
<tr>
<td>Teachers should change the classroom environment or arrangement in response to student demonstrate of challenging behavior.</td>
<td>.08</td>
<td>363</td>
<td>.12</td>
</tr>
<tr>
<td>Teachers should praise children when they engage in appropriate behavior.</td>
<td>.12</td>
<td>364</td>
<td>.02*</td>
</tr>
<tr>
<td>Teachers should provide incentives to encourage children to engage in appropriate behavior.</td>
<td>.18</td>
<td>364</td>
<td>.00**</td>
</tr>
<tr>
<td>Teachers should reprimand children when they engage in problem behaviors.</td>
<td>-.15</td>
<td>363</td>
<td>.01**</td>
</tr>
<tr>
<td>Teachers should be aware of factors outside of school that may influence a child's behavior</td>
<td>.06</td>
<td>361</td>
<td>.24</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).
CHAPTER 5. DISCUSSION

Purpose

The purpose of this study was to obtain and analyze information regarding the perceptions of special education teachers in the Commonwealth of Virginia on the use of functional behavior assessment with students with high incidence disabilities in public schools. Specifically, the study was designed to examine (a) what types of behaviors most frequently prompt a FBA to be conducted, (b) the relationship that exists between the type and frequency of training and the perceived effectiveness of FBA, (c) the relationship between teacher beliefs and self-efficacy and the overall perceived effectiveness of FBA, and (d) how teachers perceive the overall FBA/BIP process in public schools. This chapter provides a brief review of the methodology, summary of major findings, limitations of the study, and directions for future research.

Methodology

A nonexperimental survey design using an online self-report survey was administered to special education teachers in Virginia. The survey was developed as a replicate of the surveys previously administered by Katsiyannis et al. (2008) and Couvillon et al. (2009) with the addition of two domains that examined teacher beliefs and teacher self-efficacy. The domains of the survey included perceptions of effectiveness of FBA, behaviors that prompt a FBA, FBA procedures, BIPs, district procedures, training, implementation, teacher beliefs, teacher self-efficacy, and demographic variables.
Special education directors were the primary contact for the special education teachers and were requested to forward information sent by the researcher to the special education teachers in their divisions. Directors were asked to forward a pre-notice e-mail, a survey recruitment letter, the survey, two reminder notices, and a thank-you e-mail to the teachers. Following initial data collection, an attempt to increase responses was conducted by reissuing the survey to select divisions. An incentive was used to enhance survey completion.

Results

The results of the study in relation to the research question are discussed in the following sections.

Perceived Effectiveness of FBA/BIP

The effectiveness of FBA and BIP from the special education teacher perspective has not been effectively evaluated in the research literature. Special education teachers have been identified as the primary personnel in school divisions to conduct FBA and design and implement BIPs for students in public schools who are demonstrating challenging behaviors. Therefore, it is essential to understand their perceptions of the FBA process and its utility in applied settings. In the current study, responding special education teachers indicated that they perceive FBA and BIPs to be moderately effective in reducing challenging behaviors, increasing positive replacement behaviors, and improving learning/academic achievement in public schools of students. This finding is congruent with the finding of Katsiyannis et al. (2008) at the district administrator level. The reported effectiveness by the responding sample was surprising as the effectiveness rating was expected to fall in the lower range of the scale of not to somewhat effective. The lower rating was predicted due to the inconsistencies across divisions in training
and the procedures used to conduct FBA and the overall lack of empirical support for the use of FBA in applied settings with individuals of varying intelligence and ability.

The examination of demographic variables revealed that responding special education teachers who teach in a self-contained classroom find FBA and BIP to be more effective than those who teach in an inclusive, collaborative, or resource classroom. This finding is not surprising due to the nature of the continuum of placement. Students demonstrating chronic and high intensity behaviors typically move through the continuum to a more restrictive environment in an effort to provide intensive and individualized services. These services are typically provided in a self-contained setting where the variables influencing behavior are more controlled, more supervision is provided, and the classroom make up is smaller.

When the type of disability was examined low frequency (ex: intellectual disability, autism spectrum disorders, and visual and hearing impairment) and high frequency disabilities (ex: Learning Disabilities, Other Health Impaired, Emotional/Behavior Disorders) were included as special education teachers often provide support to students across disability categories. The findings indicate that responding special education teachers who teach students with OHI, LD, and E/BD find FBA to be more effective than special education teachers who teach students with other disabilities. Again, this finding is counterintuitive as the research support for FBA with students with or at risk for a high incidence disability is still emerging and in preliminary stages of exploration.

**Behaviors That Prompt FBA**

According to responding special education teachers in Virginia, the two behaviors that most often lead to FBA are chronic problem behavior and physically aggressive behavior. This finding is consistent with the findings of Katsiyannis et al. (2008) and Couvillon et al. (2009) as
both studies cited the behaviors that lead to the initiation of FBA as physically aggressive behaviors and chronic problem behaviors. Congruent with Couvillon et al. (2009), the behaviors identified as most likely to trigger the initiation of FBA are associated with violence and aggression while the behaviors least likely to initiate FBA are associated with escape and avoidance behaviors. Katsiyannis et al. (2008) reported that respondents indicated FBA was most useful for dealing with chronic problem behavior, followed by verbal and physical aggression. In alignment with the current study and the study conducted by Couvillon et al. (2009), Katsiyannis et al. reported that FBA procedures were least useful in addressing drug-related behaviors, weapon-related behaviors, and truancy. IDEA mandates FBA for offenses involving weapons and drugs however; these categories were ranked low in terms of leading to a FBA. This finding again speaks to the notion that policy has exceeded the research base and further exploration of FBA and refinement of the behaviors that prompt FBA is warranted.

Responding elementary special education teachers reported that chronic problem behaviors and physically aggressive behaviors prompt FBA significantly more than other grade levels. In addition to elementary school special education teachers, high school special education teachers identified chronic problem behaviors as behaviors that most likely prompt FBA. Since research in FBA is primarily seated in elementary education it is important to further refine and examine the behavior categories of chronic problem behaviors and physically aggressive behaviors.

**FBA Procedures**

In the absence of a standardized protocol school divisions in Virginia, like school divisions nationwide, determine the methods and procedures by which FBA is conducted within their own respective division. In an effort to examine the procedures and methods used in
Virginia and to determine if there is consistency across school divisions, responding special education teachers were asked to identify the procedures and methods used in their respective school division based on the practices that have been identified in the literature as components of FBA. Responding special education teachers identified operationally defining behaviors and specifying the most and least likely times the behavior occurs as the two procedures most commonly required by school divisions. Similar to the findings reported by Katsiyannis et al. (2008), the current study identifies validating the hypotheses prior to intervention as the lowest reported procedure. This finding is alarming as one of the primary purposes of FBA is to determine the function of behavior in order to develop interventions that target the function. The hypothesis must be validated in order to select appropriate interventions and develop intervention plans that will replace challenging behaviors and teach adaptive behaviors that serve the same purpose as the challenging behavior. Without validation of the hypothesis the chance that the intervention will not target the function increase which negates the purpose of FBA.

Survey respondents reported that indirect measures (i.e., interviews (84%), observation (93%)) as most frequently used. This finding is also congruent with the literature as indirect measures are more easily conducted and often take less time and resources to complete. The research does support that the use of mixed methods, the use of indirect and direct measures, provide the most accurate functions of behavior. The responding sample reported a relatively high percentage (67%) for the use of functional analysis. It is unclear to the researcher whether the responding sample of special educators have a clear understanding of functional analysis as it was not explicitly defined in the survey therefore further examination is required.

Special education teachers who completed the survey also reported on the procedures that are actually used to conduct FBA. Teacher interviews and informal direct observation were
identified by a little less than half of the respondents as always being used to conduct FBA. Rating scales were found to be the lowest used method used for conducting FBA. Significant differences were not found among the various methods indicating that one method is not used significantly more or less than the others. While teachers rated teacher interviews and informal direct observation as being used more, there was not a statistical difference found among their ratings and the ratings of other methods. Katsiyannis et al. (2008) reported similar findings in their investigation of procedures with special education directors. In their study, Katsiyannis et al. (2008), also identified teacher interviews, followed by informal direct observations, parent interviews, and student interviews; however, these procedures were reported as used significantly more than the midpoint (i.e., moderate frequency) by special education directors.

Training

The study provided information related to teacher preferred training formats and methods, perceived effectiveness of FBA training, and the relevance of specific training topics. Key findings in each of these areas are described below.

Training formats and methods. Training is essential to the proper use of FBA; therefore, training of special education teachers in FBA was an area of interest in this study. Almost half of respondents indicated that they received training in FBA during pre-service and through in-services provided by the school division in which they are employed. As indicated by this response, college professors, researchers, and school division personnel are the primary people to have delivered the training in FBA. As reported by Couvillon et al. (2009), 15% of respondents reported not receiving any training in FBA. Exploration of the type of training special education teachers received and the number of years of service in their current position revealed that special education teachers with 10+ years are most likely to receive their training
through in-services provided by the school division whereas their counterparts with 2-5 years of
service are more likely to receive training during pre-service coursework. These results are not
shocking as responding special education teachers with 2-5 years of experience are most likely
just entering the workforce from college whereas those with 10+ years are being trained by
school divisions following the IDEA amendments of 1997 and 2004. Couvillon et al. (2009)
reported that the longer an educator stays in the profession the greater the chance that FBA
training will be received but did not specify the avenues by which training is received by number
of years of service.

A little over half of respondents indicated that training was delivered in a team-based
format and almost three-quarters of all respondents believe that training is most effective when
delivered to teams rather than to individuals. The literature supports the use of training with
follow-up support as the most effective means of training in FBA (Conroy et al., 2000; Gable et
al., 2001). However, the majority of respondents reported receiving training through didactic
formats. Less than 20% reported receiving training with follow-up support. In response to
which format of training special education teachers believed to be most effective, 65% responded
that training with follow-up support was believed to be the most effective means of training in
FBA.

**Perceived effectiveness of the training.** The majority of respondents found the training
they have received in FBA and BIP as moderately to very effective. A correlation was found
indicating that the more effective special education teachers viewed the training they have
received; the higher they rated the overall effectiveness of FBA and BIP.

**Areas of training.** Respondents indicated the areas of FBA in which they have received
training and identified areas in which they believe more training is needed to increase their
ability to conduct an FBA and design a BIP. The majority of respondents received training in most of the specific content areas of FBA. The lowest rated (34%) content area focused on procedures to validate the hypotheses. Validating the hypotheses was also rated as the lowest rated procedure required by school divisions to conduct FBA. Therefore, the finding that responding special education teachers have received little training in this area is not surprising. Validating the hypotheses is a critical step in FBA to ensure that the selected intervention accurately addresses the identified function.

Responding special education teachers are most comfortable with the training they have received in the most and least likely times that a behavior occurs, operationally defining the behavior, and identifying the consequences that maintain the behavior. The same procedures were identified as the procedures most commonly required by school divisions to conduct FBA; therefore, it is logical that teachers have received focused training in these areas. More training is needed in the areas related to the BIP such as developing function-based interventions and developing behavior intervention plans from FBA data as well as methods for validating the hypotheses prior to intervention, the use of direct and indirect methods of assessment, and collaborative teaming.

**Development and Implementation of BIP**

The data gathered during the FBA process are to be used in the development of a BIP for the student demonstrating challenging behaviors. More than three-fourths of respondents indicated that the data gathered during FBA was used often or always used in the development of a BIP; however, this is an area that the need for more training was identified. This suggests that while the responding sample of special education teachers uses FBA data to develop a BIP, they may not feel qualified to do so.
Formal and informal observation is reported as used to determine if the intervention is implemented as planned in the BIP following implementation. Team meetings to review the BIP are most often held once every grading period; however, approximately 20% report that the team never meets to review the BIP once it has been implemented. Behavior Intervention Plans are fluid documents that should be reviewed on a regular basis to refine interventions. A response of 20% reporting that the team never meets following the implementation of the plan is disturbing and speaks to the fidelity and integrity of intervention implementation.

**Teacher Beliefs and Self-Efficacy**

The literature provides a limited knowledge base about how teacher beliefs and self-efficacy influence teacher perceptions of FBA. Two teacher beliefs demonstrated a positive correlation with the views of perceived effectiveness of FBA. The belief that teachers should praise children when they engage in appropriate behavior and the belief that teachers should provide incentives to encourage children to engage in appropriate behavior had a weak positive correlation with the views of perceived effectiveness of FBA. Correlations between the beliefs that teachers should praise children when they engage in appropriate behavior and that teachers should provide incentives to encourage children to engage in appropriate behavior indicates that responding special education teachers who believe that children should be praised or receive incentives for engaging in appropriate behavior are associated with viewing FBA as more effective than teachers who do not hold these beliefs. Additionally, a negative correlation was found between the perceived effectiveness of FBA and the belief that teachers should reprimand children when they engage in problem behaviors suggests that responding special education teachers who believe that children should be reprimanded for engaging in problem behavior do find FBA as effective as those who do not hold this belief. A positive weak correlation was
found to exist between teacher self-efficacy and perceived effectiveness of FBA indicating that high levels of teacher self-efficacy are associated with increased views of perceived effectiveness of FBA in public schools in Virginia. While the correlations were weak they do provide insight into the relatively limited research base for understanding the relationship between teacher beliefs and sense of self-efficacy and the effectiveness of methods like FBA and BIP.

**Limitations**

There are a number of limitations that affect the internal and external validity of the study. These limitations were in restrictions in the sample pool, challenges in sample recruitment, and survey distributions procedures. Each of these is described below.

**Sample Pool**

The sample included 373 special education teachers who met the criteria for participation in the study. The criteria limited the number of special education teachers that qualified for participation in the study. A larger sample may have been obtained if teachers of students with low incidence disabilities had also been included.

**Recruitment**

Significant challenges occurred during the recruitment of special education teachers for participation in the study. A database of special education teachers licensed in high incidence disabilities with contact information did not exist in Virginia at the time the study was conducted. The availability of contact information for special education teachers was limited across the divisions; therefore, the recruitment of special education teachers relied on participation of the special education director in each of the 132 school divisions in Virginia. During the preliminary stages of contact with special education directors, 27% responded positively with intent to participate in the study. This is a relatively low response rate, therefore,
it is unclear as to how many special education directors participated in the study and forwarded the necessary materials to the special education teachers in their divisions. The indirect method of recruitment through the special education is a significant barrier as the possibility that special educators with experience in and knowledge of FBA were inadvertently not provided the opportunity to be included in the study.

**Survey Distribution**

The methods used to distribute the survey present multiple limitations. The first limitation to the distribution of the survey was the use of Web-based survey methods. School divisions have safeguards and protection against spam thereby increasing the likelihood that the intended recipient will fail to receive the e-mail, thus reducing the rate of response due to failure to receive the invitation. As recommended by Dillman et al. (2009), individualized e-mails rather than mass group e-mails were sent to special education directors as an attempt to reduce the probability of having the e-mail sent to spam as well as carefully wording the subject and "from" line in the e-mail.

Second, as discussed in the recruitment section, the method by which the survey was distributed to special education teachers presents a possibility for response bias. Disseminating research materials through the special education director may have influenced special education teachers who were notified of the study. It is possible that special education teachers were more inclined to participate in the study as a result of receiving the study information from the special education director for two reasons: (a) the special education director is a known entity in a power position to the special education teacher, and (b) the forwarding of the material to the special education teacher from the special education director may have been perceived by the special education teacher as an endorsement of the study.
Lastly, the distribution of the survey relied on the special education directors’ interest and commitment to the study. Reliance on the special education directors for distribution of the study material may have resulted in the failure to deliver the materials in a timely manner or at all to study participants. As previously mentioned, the relatively low response rate (27%) from special education directors during the preliminary inquiry indicates the potential that special education directors that did not respond would also not follow through with the delivery of the survey materials. Although it was requested that special education directors notify the researcher when survey materials were distributed, the special education directors did not follow through with this request.

**Impact on Validity of the Results**

Several factors have an impact on the validity of the results. First, the use of an online self-report survey inherently impacts the validity of the results due to selection threats. The special education teachers who participated in the study were volunteers and may have been motivated by several factors including the influence of the special education director in the delivery of the survey materials, a previous negative experience during the FBA process, or work-related stress due to students exhibiting challenging behaviors.

The recruitment and distribution methods used in the study have an impact on the validity of the results. The potential response bias indicates that the results may not be an accurate portrayal of the use and perception of FBA in Virginia by special educators. It is possible that the responses are not representative of all special educators in Virginia and does not accurately portray the methods and procedures used in FBA, the training received and needed in the future, or the behaviors that prompt FBA in Virginia.
Impact on Generalizability of Results

The ability to generalize the results is limited due to the acknowledged limitations of the study. While the study was administered across the eight superintendent regions in Virginia, the majority of respondents identified being located in rural areas. Therefore, the results must be viewed with caution in regard to suburban and urban settings due to inherent differences between rural, suburban, and urban locations.

The limited sample size also diminishes the ability to generalize this study beyond Virginia. Replication of this study with modifications to recruitment of participants and survey distribution methods is necessary in order to compare the current results with national literature on FBA and BIP.

Discussion

The results of the current study contribute to the FBA literature in a number of ways, including describing special education teachers' perspectives of their knowledge of FBA, the use of FBA in their schools, the training they have received, and the factors that affect their use of FBA strategies. In addition, study findings identify the need for future research in this area. Each of these areas is discussed below.

Affirmation of Prior Research

The findings of the current study align with previous research on FBA in multiple areas of interest. First, it must be recognized that the use of FBA in applied settings with students with high incidence disabilities remains in the exploration and adoption stage of implementation science. The inconsistencies among divisions and the apparent lack of supportive infrastructure and marginally effective training programs suggests that divisions have bypassed the primary stages of implementation and moved rapidly to full implementation. It is especially concerning
that more than 15 years after the inception of positive behavior supports, FBA, and BIPs in federal law that the implementation of FBA in public schools remains in the first stage of implementation science.

The emerging literature supports that FBA is effective in reducing challenging behaviors of students with or at risk for a disability and also improving learning and achievement (Gage et al., 2012; Goh & Bambara, 2012; Heckaman et al., 2000; Reid & Nelson, 2002; Sasso et al., 2001). The current study found that special education teachers in Virginia who responded to the survey perceive FBA procedures as moderately effective in reducing challenging behaviors and in improving learning/academic achievement. Teachers of students with OHI, LD, and E/BD in the sample indicated that FBA is very to extremely effective in reducing challenging behaviors.

The current literature base has examined the behaviors that prompt FBA to be conducted in the school setting with the majority of these studies focusing on externalized behaviors (Scott et al., 2004; Scott et al., 2005; Scott et al., 2008). This study corroborated the findings in the literature indicating that externalizing behaviors of chronic problem behavior and physically aggressive behavior accounted for 86% of all behaviors leading to FBA. Significant differences were found by region and grade level. Elementary and high school educators indicated chronic problem behaviors prompting a FBA more than other grade levels. Current research is primarily seated in elementary schools; therefore, this finding further supports the current literature base regarding behavior that prompts FBA.

Methods and technologies to conduct FBA vary among school divisions in the absence of a standardized protocol for implementation of FBA (Gresham et al., 2001). The results of this survey indicate that the responding sample of special educators in Virginia rely heavily on the use of indirect measures rather than direct measures of assessment.
Training methods and practices are another area that has been reviewed in the literature. This study aligned with current research in that respondents received training using pre-service and in-service (provided by the school division) formats equally (48%). The use of in-service provided by the school division aligns with the requirement of IDEA that school divisions have highly trained staff to conduct FBA. The literature also supports training school staff in teams rather than individually (Conroy et al., 2000, Conroy & Davis, 2000; Dukes et al., 2008; Gable et al., 2001; Quinn et al., 2001; Scott & Kamps, 2007; Van Acker et al., 2005; Weber et al., 2005). The findings of the current study exert that the majority of training received by respondents was delivered using a team format (51%) and that the majority perceive training to be more effective when delivered to teams (73%). While the primary method of training delivery was in a didactic format (53%), only 3% of respondents indicated that they perceived didactic methods as the most effective method for training. The literature has expressed that training is more effective when delivered through multimodal methods and providing follow-up support (Conroy et al., 2000; Scott & Kamps, 2007; Van Acker et al., 2005). In the current study, 65% of respondents perceive training with follow-up support as the most effective means of training. Ultimately, a correlation was found indicating that the more effective special education teachers viewed the training they have received; the higher they rated the overall effectiveness of FBA.

Data obtained from FBA is to be used to guide the development of BIPs in order to accurately address the functions of behavior. Seventy-six percent of respondents reported that information from the FBA was often or always used to develop the BIP. FBA has been determined successful when used in special education classrooms but lacks evidence in general education settings. This study supports that overall the special education teacher is perceived as responsible for implementing the BIP following the conclusion of the FBA.
The current literature base reports that implementation validity reports are lacking. In the current study, respondents reported that they primarily use formal or informal observations (79%) or team meetings (51%) to determine if the intervention was implemented as planned in the BIP. Eight percent reported that no procedure was used to validate the implementation of interventions in the BIP. Unfortunately, 21% of respondents reported that the team never meets to review or revise the BIP; therefore, it is difficult to measure the successful implementation of BIPs in Virginia.

**Current Study in the Context of the Research Literature**

The current study aimed to build on the current work of Katsiyannis et al. (2008) and Couvillon et al. (2009) examining the perception of district level administration and special educators regarding FBA. The study was developed using the aforementioned studies as a framework for study and survey development to add to the sparse literature base examining the perceptions of school personnel regarding the use of FBA. Interest was focused on (a) the nature of behaviors addressed by FBA, (b) the type and usefulness of FBA procedures most frequently used, (c) the typical individuals involved in the FBA process, (d) training methods and procedures, and (e) teacher self-efficacy and self-beliefs.

**Future Research**

While this study contributes to the current literature base in understanding the perceptions of special education teachers on FBA practices and procedures there remain an array of areas that require further research.

This study confirmed the reports in the current literature that externalizing behaviors are the prominent behaviors that prompt FBA. Chronic behavior problems and physically aggressive behaviors were identified in the current study, but the broad nature of these categories
indicates a need to further refine the categories for greater sensitivity. Further investigation into the behaviors that prompt FBA is warranted.

Another area that is in need of further assessment is the methods and procedures used to conduct FBA. In the current study, teachers reported requirements of the division to use certain procedures; however, the teachers did not report actually using those procedures when conducting FBA. The procedures that produce the most valid results in applied settings have yet to be established and require further attention.

Additionally, the area of teacher self-efficacy and beliefs is lacking in regard to how these attributes influence teacher perception of the functionality of FBA in schools and requires further examination. In order for FBA and BIP to effectively change the behavior of students, teachers must perceive themselves as effective change agents with the ability to positively affect student outcomes. Teacher beliefs and self-efficacy also influence the ability of the teacher to implement interventions with integrity and as designed. Well written plans will not be successful if not carried out in the manner by which they are intended. The research has demonstrated, however limited, that higher measures of teacher self-efficacy lead to higher levels of job satisfaction and is also a protective measure against job stress (Kelm & McIntosh, 2012). Teaching students with challenging behaviors can impair job satisfaction and increase stress rates among teachers; therefore, examining practices such as SWPS and effective practices of FBA and BIP is essential.

Finally, a more in-depth review of implementation science and FBA is warranted to determine the processes that school divisions adhere to when adopting practices that have a limited research base for use in applied settings yet are required by federal law for diverse
populations. A thorough examination of school adoption and implementation practices can further the knowledge base to enhance training and the development of standardized protocols.

Methodologies to Address Future Research

While surveys are far reaching and can be administered with ease with online survey methods, they are limited in their ability to effectively reach the intended population. Future research must combine methods of investigation in order to fully appreciate the current status of FBA in applied settings and to contribute to the literature base to answer the question whether or not school personnel possess the knowledge, ability, and skill to conduct FBA and design and implement BIPs with integrity. Experimental methods, including well designed studies with control groups, and nonexperimental methods are essential to obtaining a well defined literature base for understanding the effectiveness of FBA in school settings. Key features to address in future research are the effects of SWPS in conjunction with FBA, the implementation procedures used by schools to conduct FBA and design BIPs, and implementation integrity measures for BIP.

Implications of the Study

The study has implications for program administrators and teacher training professionals. These implications are described below.

Implications for State and Local Program Administrators

The findings of this study provide state and local program administrators with information that can be used to further advance the current use and practices of FBA and BIPs in school divisions in Virginia. While special education teachers reported perceiving FBA and BIP as moderately effective for reducing challenging behaviors and increases academic outcomes for
students with high incidence disabilities it should be a goal to increase this perception to extremely effective.

The inclusion of FBA and positive supports in federal law forced school divisions to include these methods quickly into their practices. School divisions need to take a step back and review the processes in their divisions by which FBA was adopted into practice using the steps identified in implementation science research. Ensuring school personnel buy-in, proper training, and adequate supports for implementation are essential to promoting the continued and adequate use of FBA and BIPs. Developing division wide and school based teams to train and monitor implementation of FBA and BIP is essential.

Additionally, school divisions should be concerned that teachers within their divisions are conducting and implementing FBA and BIPs without training or limited training in the methods of FBA. Conducting FBA and designing BIPs without adequate training in the methodologies and procedures cannot yield sufficient intervention programs. It is therefore essential that school divisions review their procedures for staff development in these areas reflecting on the research base that supports team-based training and the use of follow-up support within the classroom following training to provide teachers with the skills and feedback necessary to conduct and implement FBA and BIPs with integrity. Many areas were identified through the current research for areas that special education teachers in Virginia desire more training to enhance their skills. Increases in school violence and students presenting with challenging behavior is not on a downward spiral, therefore, school divisions need to review and address the available programs and strategies including SWPS and FBA to address these challenges and maintain students with or at risk for high incidence disabilities in the least restrictive environment within their home-based school.
FBA procedures and methods are also in need of standardization. Each school division in Virginia is allowed to determine the process and methods they use to conduct FBA. This study confirms that while divisions use many of the same procedures and methods there is inconsistency across divisions and within regions regarding the methods that are used to conduct FBA and then develop a BIP. State and local educational leaders should closely review the practices that are identified as necessary components for FBA and develop a standard protocol to be used in each division to ensure consistency of practices across Virginia. Again, using implementation science stages to address these issues is necessary to ensure the process is embraced within school divisions by school personnel.

**Implications for Teacher Training Programs**

The majority of special educators in Virginia identified training in FBA and BIP as moderately to very effective. It should be the goal of the school divisions within Virginia and the state to provide training in FBA that is extremely effective including a team-based approach with adequate posttraining support. Effective training is the means by which effective FBA will be conducted and BIPs will be developed.

This study revealed that special educators in Virginia primarily receive training in FBA and BIP during pre-service instruction at the college level and in-services delivered by the school division. This finding has implications for training programs in Virginia. Universities and colleges should examine their courses of study for all teachers, not only special education teachers, to ensure that all pre-service teachers are receiving adequate training and experience with conducting FBA and designing BIPs using FBA data in a supervised situation where immediate feedback and support can be provided. The curriculum should focus on the
process, methodologies and procedures, data analysis to determine the function of the behavior, and the development of a BIP to target the recognized function.

Additionally, in-service training should focus on team-based methods either at the school or division level. FBA is a team-based process therefore training should be conducted in teams to develop an understanding of the teaming process and the functions of the team. Follow-up support should also be a component of training. Attending 1-day seminars without follow-up support during FBA and BIP development is futile.
List of References
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## Appendix A

### Survey

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Response Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>In general, rate the extent to which FBA contributes to the effectiveness of interventions that reduce challenging behaviors of students.</td>
<td>Perception of effectiveness</td>
</tr>
<tr>
<td>In general, rate the effectiveness of current FBA methods in increasing positive replacement behaviors and improving learning/academic achievement in public schools.</td>
<td></td>
</tr>
<tr>
<td>Select the problem behavior(s) that are most likely to lead to an FBA being conducted (Select all that apply).</td>
<td>Behaviors</td>
</tr>
<tr>
<td>How often, if at all, do you use the following procedures when working with students</td>
<td>FBA procedures</td>
</tr>
<tr>
<td>In those teams/FBAs in which I have been involved, behavior intervention plans were typically developed using the information obtained from the FBA.</td>
<td>BIPs</td>
</tr>
<tr>
<td>Which of the following procedures are part of your district’s process for conducting an FBA? Please check all that apply.</td>
<td>District procedures</td>
</tr>
<tr>
<td>Which of the following instruments are part of your school districts process for conducting a FBA? Please check all that apply.</td>
<td></td>
</tr>
<tr>
<td>What types of training, if any, have you received on FBA: (Check all that apply)</td>
<td>Training</td>
</tr>
<tr>
<td>Select the format(s) used to deliver the training in FBA; (check all that apply)</td>
<td></td>
</tr>
<tr>
<td>If you received training, who primarily provided your training in FBA? Please select one.</td>
<td></td>
</tr>
<tr>
<td>Rate the perceived effectiveness of the training you have received in conducting a FBA.</td>
<td></td>
</tr>
<tr>
<td>Rate the perceived effectiveness of the training you have received in designing BIPs.</td>
<td></td>
</tr>
</tbody>
</table>
Indicate the areas of FBA by which you were trained: (check all that apply)

Is training in FBA delivered to:
- Individuals
- Teams

What type of training in the FBA process would you find most effective?

In your opinion, is training more effective when delivered to:
- Individuals
- Teams

In what area of FBA do you feel more training is needed to increase your ability to conduct a FBA and design a BIP? (select all that apply)

In your opinion, who is primarily responsible for implementation of the intervention on a FBA/BIP is complete?

What procedures have you used to determine if the intervention is implemented as planned in the BIP? (Check all that apply)

How often, if at all, does the team meet to review and revise the BIP following implementation?

Teachers should use clear behavioral expectations and routines for specific activities and review them frequently with students?

Teachers should have consistency in expectations for all students’ behavior in the classroom.

Teachers should use a clear set of consequences for students when they violate classroom rules.

Teachers should change the classroom environment or arrangement in response to student demonstration of challenging behavior.

Teachers should praise children when they engage in appropriate behavior.

Teachers should provide incentives to encourage children to engage in appropriate behavior.

Teachers should reprimand children when they engage in problem behaviors.
Teachers should be aware of factors outside of school that may influence a child’s behavior.

<table>
<thead>
<tr>
<th>Question</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>How much do you control disruptive behavior in the classroom?</td>
<td>Teacher self-efficacy</td>
</tr>
<tr>
<td>To what extent do you make your expectations clear about student behavior?</td>
<td></td>
</tr>
<tr>
<td>How often do you get students to follow classroom rules?</td>
<td></td>
</tr>
<tr>
<td>How well can you establish a classroom management system with each group of students?</td>
<td></td>
</tr>
<tr>
<td>How well can you keep a few students from disrupting an entire lesson?</td>
<td></td>
</tr>
<tr>
<td>How well can you respond to defiant students?</td>
<td></td>
</tr>
<tr>
<td>In which superintendent region are you located?</td>
<td>Demographics</td>
</tr>
<tr>
<td>Select the choice below that best describes the school division in which you are currently employed.</td>
<td></td>
</tr>
<tr>
<td>What is your current position in the school division?</td>
<td></td>
</tr>
<tr>
<td>How long have you been in your current position?</td>
<td></td>
</tr>
<tr>
<td>What grade level do you currently teach/work?</td>
<td></td>
</tr>
<tr>
<td>In which type of classroom do you currently work?</td>
<td></td>
</tr>
<tr>
<td>Select the disability category or categories with whom you currently work. (Select all that apply)</td>
<td></td>
</tr>
<tr>
<td>What level of behavioral intensity do you typically encounter in your classroom?</td>
<td></td>
</tr>
<tr>
<td>What is your current educational status?</td>
<td></td>
</tr>
<tr>
<td>What type of teaching license do you currently possess?</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Letter to Special Education Directors

Dear Director of special education name here,

My name is Joy Engstrom and I am a doctoral candidate in the Department of Special Education and Disability Policy at Virginia Commonwealth University. The focus of my dissertation is special education teachers’ perspectives of the factors that influence their implementation of functional behavior assessment when working with High Incidence disabilities in public schools. The purpose of this correspondence is to

- Ascertain if there is an interest within your school division to assist me in the implementation of this study
- Determine the process by which research is conducted within your school division.

The examination of factors that increase the quality of implementation of FBA in public schools is a topic that is important to administrators, teachers, and students. I believe that the outcomes of my dissertation will provide information that can help teachers use FBAs more effectively and efficiently in their classrooms. To date there is a sparse amount of literature reflecting special education perceptions of FBA and the beliefs and self efficacy of teachers that relates to the implementation of functional behavior assessment (FBA) and positive behavior supports (PBS) with students with high incidence disabilities. This survey-based study seeks to explore the factors by which special education teachers conduct FBA and implement behavior intervention plans (BIPs). Specific focus is targeted toward the

- Special education teacher’s perception of behaviors that most frequently prompt an FBA to be conducted,
- The relationship between type and frequency of training in FBA and the teacher’s ability to conduct FBA and design BIPs,
- The relationship between teachers’ attributes of beliefs and self-efficacy and the implementation of behavioral interventions.

Special education teachers are often the frontline personnel charged with conducting FBA in the school setting therefore it is necessary to understand their perceptions of the FBA and BIP process in order to facilitate and enhance the methods by which FBA is conducted within our public schools.

The research will be conducted via an online survey that will be distributed to the teachers through e-mail. I am asking if you would be willing to distribute the survey to an identified number of special education teachers within your school division. The survey will take approximately 15 minutes to complete. Due to confidentiality of personal information, the special education director’s office will be asked to distribute the survey to special education teachers via their school e-mail account. Please respond to this letter via e-mail at engstromjn@vcu.edu indicating your consideration to participate in the study and also provide information relevant to conducting research in your school division.

I sincerely appreciate your time and willingness to consider participation in the study.

Sincerely,

Joy Engstrom
Appendix C

Recruitment Letter

Dear Teacher,

We are conducting a survey to ascertain special education teacher’s perception of Functional Behavior Assessment in public education. As a special educator, you possess valuable information that can guide the future directions of FBA regarding implementation and training in public education.

Currently, we are asking for your participation in this research project. To be eligible to participate, the following criteria must be met:

- Possession of a teacher level contract with a school division
- Be employed in a school division in a special education capacity
- Completed at least 6 months in current position
- Serve on at least one IEP team for a student suspected of or with a disability
- Participated in the FBA process within the past five years
- Hold a current license or provisional license in high incidence disabilities in Virginia and teach students with chronic behavior problems
- Have an active e-mail account

If you meet these criteria and choose to participate, we would like for you to complete a brief web based survey. In the survey you will be asked:

Participation is strictly voluntary. The survey will take approximately 15 minutes to complete. You may skip questions you do not want to answer or may contact the researcher at anytime for assistance. All responses will be kept confidential. Your name will not be associated with your responses in any way. If you choose to participate you will be provided the opportunity to win a cash prize through a random drawing. All participants who complete the survey will be entered. A total of five cash prizes of $20.00 each will be given away. To be registered for the drawing, you must complete the “survey completion” form. Send it to the address at the bottom of the form. This information will be kept separate from your survey responses so it will not be possible to identify specific individuals. Information on the card will only be used to notify you if your name is drawn. The drawing will be held 2 weeks after the survey submission deadline.

If you have chosen to participate in the research project, please click on this link. This will take you directly to the survey.

http://www.surveymonkey.com

The website will provide specific information on how to complete the survey. The deadline for survey completion is September 30, 2011.

Sincerely,

Joy Engstrom, M.Ed.
Dr. Maureen Conroy
Dr. John Kregel
If you have questions about the survey, please contact:  
Joy Engstrom, M.Ed  
Department of Special Education and Disability Policy  
Virginia Commonwealth University  
(804) 827-0737  
engstromjn@vcu.edu

If you have questions about your rights to participate in this study, please contact:  
Office of Research, Virginia Commonwealth University  
800 East Leigh Street, Suite 113  
P.O. Box 980568  
Richmond, VA23298  
(804) 827-2157
Joy Nichole Engstrom was born March 24, 1978, in Marion, Virginia. Joy graduated from Marion Senior High School in 1996. She received a Bachelor of Science degree from Virginia Commonwealth University in 2000. Subsequently, she received her Master of Education degree in Special Education from Virginia Commonwealth University in 2004. Joy completed her certification through the Virginia Leadership Education in Neurodevelopmental Disabilities from the Medical College of Virginia at Virginia Commonwealth University in 2009. Joy taught in Hanover County Public Schools from 2001-2007. She worked at the Training and Technical Assistance Center at Virginia Commonwealth University in 2007-2008 before joining VCU as a doctoral student researcher from 2008-2010. Joy also served as an adjunct faculty member in the postbaccalaureate in autism spectrum disorders program from 2008-2012 at VCU. She worked as the Training Coordinator for the Autism Center for Excellence at VCU from 2010-2012. Joy is the owner of Innovative Behavior and Educational Consultation providing behavior and educational support to individuals with disabilities.