EXAMINING THE RELATION BETWEEN CONTEXTUAL FIT AND IMPLEMENTATION

FIDELITY ON BEHAVIOR SUPPORT PLANS

AND STUDENT OUTCOMES

by

MANUEL A. MONZALVE

A DISSERTATION

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Student: Manuel A. Monzalve

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This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Philosophy degree in the Department of Special Education and Clinical Sciences by:

Robert Horner	Chairperson
Richard Albin	Core Member
Kent McIntosh	Core Member
Charles Martinez	Institutional Representative

and

Scott L. Pratt   Dean of the Graduate School

Original approval signatures are on file with the University of Oregon Graduate School.

Degree awarded September 2016

DISSERTATION ABSTRACT

Manuel A. Monzalve

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An extensive body of empirical evidence indicates that function-based behavior support plans are likely to be more effective and efficient in school settings than plans that are not function-based. Designing technically adequate behavior support plans, however, is not sufficient to ensure that these plans will be implemented with fidelity by school staff. The contextual "fit" of support plan procedures with the values, skills, resources and administrative support of implementing personnel also affects the likelihood of implementation. In this dissertation a single-subject concurrent multiple baseline design across participants was used to examine the efficacy of the Contextual Fit Enhancement Protocol (CF Intervention). The CF Intervention was designed to improve the contextual fit of support plans for four elementary school students with problem behaviors. This CF Intervention was designed based on the assumption that when procedures included in a plan match the values, skills, administrative support and resources of the people responsible for implementation the plans will be implemented with higher fidelity and will be more likely to produce desired student outcomes. Results from the study indicate that after implementation of the CF Intervention, support plans that were already technically adequate improved in contextual fit: instructional staff (a) had a better understanding of behavioral procedures being used, (b) received specific, systematic feedback about its implementation, (c) perceived high levels of administrative support, and (d)

perceived a collective commitment to improve current plans. Following implementation of the CF Intervention, substantial increases in implementation fidelity and decreases in student problem behavior were observed. In addition, teacher participants rated the CF Intervention process as effective and efficient. Limitations and implications for future research, practice, and training are discussed.

CURRICULUM VITAE

NAME OF AUTHOR: Manuel A. Monzalve

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

    University of Oregon, Eugene, USA
    Catholic University of Maule, Talca, Chile

DEGREES AWARDED:

    Doctor of Philosophy, Special Education, 2016, University of Oregon, USA
    Master of Special Education, 2008, Chile
    Bachelors of Special Education, 1998, Catholic University of Maule, Chile

AREAS OF SPECIAL INTEREST:

    Positive Behavior Interventions and Supports

    Instructional Design

    Tertiary Behavior and Academic Supports

PROFESSIONAL EXPERIENCE:

    Graduate Teaching Fellowship, University of Oregon, 2014 - 2016

    Assistant Professor, Catholic University of Maule, Chile, 2008 to Present

    Special Education Teacher, Abate Molina School, Chile, 1999 - 2007

GRANTS, AWARDS, AND HONORS:

    Graduate Teaching Fellowship, University of Oregon, 2014-2016

    MECESUP Scholarship, Chilean Ministry of Education - Catholic University of Maule, 2011

PUBLICATIONS:

Trader, B., Stonemeir, J., Berg, T., Knowles, C. Massar, M., Monzalve, M., Pinkelman, S., Nese, R., Ruppert, T., & Horner, R. H. Seclusion and restraint: A challenge for inclusion, dignity and self-determination in schools (2016). *Manuscript submitted for publication.*

Kittelman, A., Monzalve, M., & Flannery, B. Adaptation of Check-In/ Check-Out to meet the needs of high school students (2016). *Manuscript submitted for publication.*

Monzalve, M. & Horner, R. H. (2015). An examination of classroom management training in K–12 teachers and administrators in the Maule region of Central Chile. *International Journal of Positive Behavioural Support, 5(2)*, 16-24.

Pinto, A., Monzalve, M., Navarro, E., & Faundez, P. (2011). Lectura inicial y desarrollo de estrategias de apoyo para estudiantes con vulnerabilidad pedagógica de la región de Valparaiso. *Intersecciones Educativas, 3*, 39-61.

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CHAPTER I

INTRODUCTION

Statement of Problem

The purpose of this study was to examine the role of contextual fit on both the fidelity of Behavior Support Plan (BSP) implementation and the effect of BSPs on student outcomes. A significant body of research documents that behavioral interventions that address the function of problem behaviors are more effective and efficient that those that do not (Carr et al., 1999; Carr, Langdon, & Yarbrough, 1999; Crone & Horner, 2003; Didden, Duker, & Korzilius, 1997). The literature also suggests that higher fidelity of behavior support procedures and improved benefits for student occur if the BSP procedures are (a) a good fit with the natural routines of the setting, (b) consistent with the values of the people who are implementing the plan, (c) efficient in terms of money, time, and resources, (d) matched to the skills of the people who will implement the plan, and (e) produce reinforcing (not punishing) short-term results (Horner, Salentine, & Albin, 2003; O'Neill et al., 2015). Thus, BSPs should not only be technically sound but also fit with the resources, skills, administrative support and values of the people who will implement the plan in the desired context. Although to date there are compelling claims supporting the importance of contextual fit on fidelity of implementation, perceived efficiency (time, money, personnel), and desired outcomes for students receiving the intervention (Benazzi, Horner, & Good, 2006; Crone, Hawken, & Horner, 2015; O'Neill et al., 2015; Sandler, Albin, Horner, & Yovanoff, 2003), there are not systematic, empirical studies that assess the effects of contextual fit in the implementation of BSPs.

Literature Review

Among the most problematic issues in public schools are those related to students with problem behavior. A significant body of research demonstrates that students with behavioral issues experience negative consequences, including school dropout, academic failure, peer rejection and isolation (Algozzine, Putnam, & Horner, 2010; McIntosh, Chard, Boland, & Horner, 2006; Miles, & Stipek, 2006; Sutherland, Lewis-Palmer, Stitcher, & Morgan, 2008; Walker et al., 1996). For instance, students with problem behavior earn lower grades and fail more courses in comparison with groups of students exhibiting other disabilities (Wang & Algozzine, 2011). They are also at greater risk for restrictive class placement and school dropout, have lower rates of post-secondary employment, exhibit general adult adjustment problems, and experience greater rates of delinquency, violence, and substance abuse during adolescence (Fabelo et al., 2011; Nelson, Benner, & Bohaty, 2014; Newman et al., 2011; Sprague, Jolivette, & Nelson, 2014). To address these concerns, as well as their negative consequences, progressive schools are adopting three-tiered intervention models that involve the development of procedures and systems at multiple levels of intensity (Bradshaw & Pas, 2011; Horner et al., 2009; Kelm, McIntosh, & Cooley, 2014; Sugai & Horner, 2006; Sugai & Horner, 2009). One approach that is being used with success in schools to support the academic, behavioral, and social skills of all students is School-Wide Positive Behavior Interventions and Supports (SWPBIS).

SWPBIS is a framework designed to enhance the adoption and implementation of a continuum of evidence-based interventions that produce improved academic and behavioral outcomes for all students (Freeman et al., 2016; Sugai, Horner, & Lewis, 2009). According to Horner, Sugai and Anderson (2010), SWPBIS involves a 2-3 year process of leadership team training that establishes district or school capacities for the adoption of effective and preventive

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behavioral interventions. Schools achieving high implementation integrity, provide continuous

new data for decision making, and develop embedded professional development and coaching to

establish predictable, consistent, positive and safe social contingencies at the whole school level.

Such a model emphasizes core programmatic features instead of a stipulated curriculum, and

focuses on how research-based behavioral practices are organized within a multi-tiered system of

support matched to student needs (Sugai & Horner, 2009).

The first tier of intervention in the SWPBIS approach is referred to as universal supports,

or Tier I, and is designed to prevent the development of academic and social problems through

systematic teaching practices that develop and reinforce positive behavioral expectations for all

students (Horner & Sugai, 2000). The systems needed to implement this approach include team

organization, data-based decision-making, and effective SWPBIS training and orientation to

support the professional development of all staff (Horner, Sugai, & Anderson, 2010). Tier II,

also referred to as secondary intervention, is designed for students who require more intense

support than available through Tier I. Such secondary prevention practices are implemented to

limit the likelihood that existing problem behaviors will become more severe. Some examples of

these practices might include Check in-Check out (CICO; Crone, Horner, & Hawken, 2004;

Todd, Campbell, Meyer, & Horner, 2008) and/or First Step to Success (Walker et al., 1998).

Systems needed at the Tier II level include using data to monitor the progress of students

receiving secondary interventions. In addition, SWPBIS at the Tier II level requires schools to

develop the following: a) a team to select appropriate secondary interventions for the school and

individual student, b) a monitoring program documenting the fidelity of implementation, and c) a

process to choose one or more coordinators to manage decision processes regarding student

progress and to supervise secondary interventions (Horner, Sugai, & Anderson, 2010). Tertiary

interventions, or Tier III supports, provide the most intensive support for students who need individualized supports (Sugai & Horner, 2002). For the purposes of this study, tertiary supports are described in detail below.

Tertiary Supports

The tertiary supports system creates the final layer of the SWPBIS framework. At this level, intensive programs and strategies are provided to students who require individualized supports in addition to the universal and secondary levels of prevention. The purpose of tertiary supports is to diminish problem behaviors, and also to increase the student's adaptive skills and opportunities for an enhanced quality of life. Research indicates that tertiary prevention is most effective when effective universal and secondary systems of support are in place (Coffey & Horner, 2012; Sanford & Horner, 2010; Strickland-Cohen & Horner, 2015). Additionally, the design and implementation of tertiary supports are best accomplished when procedures are conducted in a comprehensive and collaborative manner by school staff. In a three-tiered system of support, school personnel are encouraged to use a student support team model (Benazzi, Horner, Good, 2006; Crone & Horner, 2003; Horner, Sugai, Todd, & Lewis-Palmer, 2005), which provides structure for collaborative decision making for all student needs. This level requires constant monitoring to evaluate if a student is making adequate progress and that intervention programs are being implemented properly. In addition, schools need personnel with expertise in behavioral assessment and the development of individualized behavioral support plans (Horner, Sugai, & Anderson, 2010; Stormont & Reinke, 2012).

Tertiary supports involve the design and implementation of individualized interventions organized into a support plan which is based on comprehensive assessment information (i.e., Functional Behavior Assessment). The concept of Functional Behavior Assessment (FBA) has

been widely used in the field of behavior support and refers to processes for identifying relations between a behavior and events in environment (Haynes & O'Brien, 1990; Iwata, Dorsey, Slifer, Bauman, & Richman, 1994; O'Neill et al., 2015; Sugai et al., 2000). Furthermore, since its inclusion in federal law in the Individuals with Disabilities Education Act (IDEA; 1997) and again in the reauthorized Individuals with Disabilities Education Improvement Act (IDEIA; 2004), which mandated its use to determine appropriate placements for students with significant problem behaviors, FBA has been considered the hallmark strategy for assessment and interventions when designing and implementing behavioral support in schools.

When applying FBA in school settings, O'Neill et al., (2015) describe FBA as a process for identifying the reason or reasons (social, academic, physiological, or environmental factors) why a student engages in problem behaviors as well as environmental conditions that maintain such problem behaviors. Such process includes indirect assessments (e.g., interviews, mental/physical reports, school records), and direct observations to identify antecedents (e. g., adult attention, teaching style, time of day) and consequences (e. g., removal of demands, reprimands) that may be correlated with the occurrence of problem behavior (Brown & De Pry, 2015; Crone, Hawken & Horner, 2015; Horner, Albin, Todd, Newton, & Sprague, 2011; Martens & Lambert, 2014; Horner & Carr, 1997; Sugai et al., 2000). FBA involves an inductive process in which (a) antecedent-behavior-consequence data are collected through different methods and ways, (b) behavior patterns in the data are identified by analyzing multiple data sources and (c) patterns are used to infer potential function of the problem behavior (Brown, & De Pry, 2015; Martens & Lambert, 2014).

Although the processes used in conducting an FBA can take many forms and have many levels of precision, there is general agreement that a comprehensive FBA is complete when six

main outcomes have been achieved, including: a) a clear description of the problem behavior is developed, b) identification of the immediate antecedents that predict the occurrence of problem behaviors, (c) identification of the setting events, times, and situations that predict when the problem behavior will be more likely to occur, (d) identification of the consequences that maintain the problem behavior, (e) development of one or more hypothesis or summary statements that integrate FBA information and include the possible function of the behavior, and (f) data collected to support hypothesis (O'Neill et al., 2015; Scott, Alter, & McQuillan, 2010; Sugai et al., 2000; Wood, Peia, Fettig, & Lane, 2015). Thus, the main purpose of an FBA is to collect relevant information, from different sources, to identify the function of the undesirable behavior, thereby serving as a foundation to design and implement effective function-based support interventions.

FBA not only plays a critical role in understanding the function of behavior but also in guiding the design of BSPs. First, it is crucial that there is a logical link between the FBA assessment information collected and the development of behavior support plans. Second, effective behavior assessment information should guide the development of effective support plans in order to make them more efficient and effective. A compelling body of empirical evidence indicates that function-based behavior support interventions and plans are likely to be more effective and efficient than non-function-based interventions (Dunlap & Fox, 2012; Filter & Horner, 2009; Haydon, 2012; Ingram, Lewis-Palmer, & Sugai, 2005; Moreno, Wong-Lo, & Bullock, 2014; Newcomer & Lewis, 2004; Preciado, Horner, & Baker, 2009; Sanford & Horner, 2012; Strickland-Cohen, & Horner, 2015). Finally, effective function-based behavioral support plans should include procedures, strategies that make the problem behavior irrelevant, inefficient and ineffective.

In addition to the importance of linking the FBA assessment information to the development of an effective and efficient behavioral support plan, it is also key to consider the following aspects: (a) the plan should indicate how teachers, family members, and personnel will change their own behavior to produce the desired changes for the student, (b) the plan must be developed based on the function or functions of the person's behavior, and (c) the plan must be consistent with principles of applied behavior analysis and include evidence-based practices (Crone, Hawken, & Horner, 2015; McIntosh & Av-Gay, 2007; O'Neill et al., 2015; Shepherd & Linn, 2015). A BSP that includes all the aforementioned components would be logical for use and technically appropriate to be implemented with an individual in a determined context. However, if the procedures included in the plan do not match with the values, resources, and skills of the people responsible for implementation, they will not likely be implemented with fidelity and produce the desired student outcomes.

Contextual Fit and Behavioral Support Plans

Although there is substantial literature supporting the assumption that BSPs must be theoretically well designed and grounded in the basic principles of applied behavior analysis, such plans must fit well with a variety of variables related to individuals and the specific context where the plan will be implemented. To describe the congruency between behavior support plan features and individual and contextual variables, Albin, Lucyshyn, Horner, and Flannery (1996) proposed the concept of contextual fit which is defined as the match between the strategies, procedures, or elements of an intervention and the values, needs, skills, and resources of those who implement and experience the plan. The approach to contextual fit offered by Albin et al. is based on the goodness-of-fit framework proposed by Bailey and colleagues (1990) to lead their family-centered, early intervention approach. Bailey et al. employed the concept of goodness-of-

fit to refer to the appropriateness of the match between early intervention support and the unique characteristics of children and their families. While Bailey and his colleagues used this concept to describe the extent to which early intervention procedures fit families' and children's characteristics, Albin et al. proposed that the concept of contextual fit is critical, not only in working with families but also in providing behavioral support in schools and non-school settings.

Consideration for the role of contextual fit when implementing evidence-based practices in applied settings has expanded significantly in recent years (Crone, Hawken, & Horner, 2015; Fixsen et al., 2010). This change may be attributed to previous applied research which fails to take into account important contextual issues when considering fidelity of implementation, and the sustainability and generalization of an intervention (Horner, Blitz, & Ross, 2014). Implementation science researchers indicate that if the fit between intervention and setting is low, the chances of an EBP being effective or leading to positive long-term outcomes is less likely (Fixsen et al., 2010; Fixsen et al., 2005).

To address these concerns, Horner, Blitz, and Ross (2014), suggest that when implementing an intervention, implementers should take into consideration the following eight components to establish the fit between the intervention and the setting: (a) the targeted intervention should meet an identified need for a target population, be valuable to those implementing, delivering and receiving it, and have more advantages than those services already in place; (b) the core features of the targeted intervention should be well defined; (c) there is empirical, rigorous evidence supporting the effectiveness of the intervention for the target population and the outcomes of interest; (d) the intervention should not only be effective but practical; (e) implementers must possess the skills, competencies, and knowledge needed to

implement the target intervention, and if not, training, coaching, and support for personnel delivering the intervention should be defined; (f) the intervention should match the values and preferences of those who will implement the intervention as well as those who will benefit from the intervention and those who will manage and support the intervention; (g) allocation of resources needed to both implement and sustain an intervention; and (h) support from those who make administrative decisions with implementation processes. Table 1includes a summary of the eight core components of fit and application questions proposed by Horner and colleagues.

Table 1. Summary of Elements of Contextual Fit

Element	Application Questions for Each Element

Need	1a. Is the outcome of the intervention highly valued?
	
	 1b. Is the level of current success low enough that there is a need for something different according to:
	
	    Those receiving support (children, youth, families, clients)
	
	    Those providing support
	
	    Those responsible for effective support (administrators, community members, political leaders)

Precision	2a. Is the proposed intervention defined with clarity and is detail provided to determine what is done, by whom, when, and why?
	
	    Are core features defined?
	
	    Are strategies for achieving the core features defined?

An Evidence-Base	3a. Does empirical evidence exist that the implementation of the core features results in valued outcomes? Does the evidence document the target population, setting conditions, and usability conditions in which valued outcomes were achieved?
Efficiency	4a. Are the time and effort for initial adoption reasonable? 4b. Are the time and effort for sustained adoption as efficient or more efficient than current interventions (given the outcomes generated)?
Skill/Competencies	5a. Are the skills needed to implement the implementation defined? 5b. Are materials and procedures available to establish needed skills? 5c. Does the level of skill development fit professional standards and or the organizational staffing structure?

Cultural/Relevance	6a. Are the outcomes of the intervention valued by those who receive them?
	6b. Are the strategies or procedures consistent with the personal values of those who will perform them?
	6c. Are the strategies and procedures consistent with personal values of those who will receive them?
Resources	7a. What time, funding, and materials are required for initial adoption?
	7b. What training, coaching, and performance feedback are needed for high-fidelity implementation?
	7c. What time, funding, and materials are required for sustained adoption?
	7d. What fidelity measures are needed to ensure monitoring of an implementation?
Administrative and Organizational Support	8a. Is adoption of the intervention supported by key leaders?
	8b. Will adoption of the intervention be monitored by key leaders?
	8c. Will fidelity and impact of the intervention be monitored by key leaders?
	8d. Is there a documented commitment to make the intervention a standard operating procedure?

The additional emphasis which ensures that interventions are context dependent has significant implications about the settings, users, and populations for which certain practices are intended (Spencer, Detrich, & Slocum, 2012). For example, an intervention that may work well with elementary school students may not be appropriate or contextually relevant for middle or high school students, depending upon the developmental age of the students in need of support. Likewise, specific contextual environments may present uniquely burdensome challenges due to the size, structure, and values of the organization which then requires specific considerations for implementation and sustainability of the intervention.

Contextual fit not only plays an important role in selecting effective interventions that match the knowledge, competencies, and values of the implementers but also in adopting an intervention during the installation and initial implementation stages. Horner and colleagues (2014) state that the manner in which interventions are introduced to the stakeholders is critical

in an implementation process. In this regard, it is crucial that educational leaders consider

contextual fit in order to ensure the necessary resources are available for using an innovation that

includes implementation of the innovation with fidelity that obtains desired student outcomes

(Aarons, Hurlburt, & Hurwitz, 2011; Blase, Kiser, & Van Dyke, 2013; Chaparro, Smolkowski,

Baker, Hanson, & Ryan-Jackson, 2012; Fixsen, Blasé, Naoom, Wallace, 2009; Whitworth &

Chiu, 2015). For example, Chaparro et al. (2012) implemented a model that supported integrated

social behavior and literacy evidence based practices within school districts. These researchers

developed a professional development initiative called Effective Behavioral and Instructional

Supports Systems (EBISS), which aims to teach practicing educators how to blend SWPBIS and

academic RTI practices to create more effective and efficient school systems. Based on school

and district needs, the teams received training on analyzing data reports, how to administer and

score literacy assessments, and modeling of effective instructional practices in both classroom

behavior management and literacy instruction, supplemented with coaching activities as a part of

the technical assistance. Results from this study showed positive outcomes on both adult and

student outcomes. For example, school and district personnel were able to meet as teams and use

behavior and literacy data to make instructional and system-wide decisions. In addition, both

measures of successful SWPBIS implementation and literacy outcomes increased significantly

from the first to the second year of the EBISS initiative. Thus, considering contextual fit when

adopting an intervention in the early stages of implementation processes can influence whether

the new initiative is accepted and fully adopted by all stakeholders and implementers.

In addition to the key role of contextual fit on the adoption of an intervention in a

determined setting, it is also important to consider contextual variables during the adaptation

stage once the intervention has been implemented (Blase et al., 2005; Fixsen et al., 2005; Horner,

Blitz, & Ross, 2014; McIntosh et al., 2013). Practitioners, staff, administrators, and leaders need to ensure that the gains made in the use of the intervention are maintained and improved over time in terms of efficiency and effectiveness. To achieve this, implementers should be able to continually adapt the intervention as conditions in the school setting evolve to improve contextual fit (McIntosh, Horner, et al., 2009). These continued adaptations include collecting fidelity and outcomes data regularly, and using data to improve efficiency, effectiveness and relevance of practices as well.

Concerning specific behavioral supports within the implementation field, the literature indicates that behavior support procedures should be technically sound and fit with the resources, skills, administrative support, and values of the people who will implement them in the desired context (Albin et al., 1996; McIntosh & Av-Gay, 2007; O'Neill et al., 2015). For instance, even if a BSP is well developed, it may prove to be ineffective if it is not implemented properly due to the failure to take into account contextual limitations (e. g., resources, administrative support, facilities issues or implementers' beliefs). Each BSP is unique in regard to how it is adapted to each setting, incorporates FBA information to determine the most effective interventions (Horner et al., 1993; Benazzi, Horner, & Good, 2006; O'Neill et al., 2015), and how it is sustained to ensure continued support for the focus individual (Albin et al., 1996; Lucyshyn, Olson, & Horner, 1995). Thus, if the contextual fit of a BSP is not fully considered during its design, there is a higher likelihood that the fidelity and continued support of the BSP by school staff will be problematic.

A BSP that has a good contextual fit (a) aligns with the natural routines of the setting, (b) is consistent with the values of the people in the setting (they indicate a willingness to perform the procedures), (c) is efficient in terms of money, time, and resources, (d) matches the

skills of the people who will implement the plan, and (e) produces reinforcing (not punishing) short-term results (Horner, Salentine, & Albin, 2003; O'Neill et al., 2015). When behavior support plans include these characteristics the likelihood that support plans strategies are implemented with fidelity is higher. Additionally, such characteristics promote increased maintenance or sustainability of support plan implementation (Horner, 2000; Lucyshyn et al., 1995, Crone, Hawken, & Horner, 2015). For instance, for some students with severe problem behavior requiring comprehensive, long-term support plans, treatment fidelity and sustained implementation of behavioral support procedures become critical factors to achieve short and long-term success.

In addition, BSPs with good contextual fit are likely to result in increased satisfaction among consumers of the plan (e. g., students, teachers, parents). For example, Benazzi, Horner, and Good (2006) examined how the composition of a behavior support team affected use of assessment information, contextual fit and technical adequacy of the support plans. Results indicated that team members rated behavior support plans designed by teams working with a behavior specialist as contextually appropriate. However, those plans created by behavior specialists alone were rated as significantly less contextually appropriate to be implemented. Furthermore, team members found that behavioral procedures included in plans designed by behavior specialists alone were (a) less familiar, (b) not consistent with their personal values, (c) less focused on the best interest of the student, and (d) not perceived as efficient to implement. Increased satisfaction among consumers may not only improve fidelity of implementation and sustainability, but also decrease issues among team members implementing the plan (Albin et al., 1996; Horner, Albin, Sprague, & Todd, 1999; O'Neill et al., 2015).

Although to date there are significant claims concerning the importance of contextual fit on fidelity of implementation, perceived efficiency (time, money, personnel), and desired outcomes for those students receiving the intervention (Benazzi, Horner, & Good, 2006; Crone, Hawken, & Horner, 2015; O'Neill et al., 2015; Sandler, Albin, Horner, & Yovanoff, 2003), there are insufficient systematic studies that document the effects of contextual fit in the implementation of BSPs.

Study Purpose, Potential Contributions, and Research Questions

The purpose of the present study was to expand the literature on function-based interventions by using rigorous single-case research methodology to examine the effects of BSPs and their contextual fit on student outcomes and fidelity of implementation. The results are intended to help (a) enhance the effectiveness of BSPs, (b) provide school staff with valuable information to make more informed decisions about improving the quality of BSPs, (c) decrease problem behaviors in student participants, (d) increase appropriate social and academic behaviors in student participants, and (d) contribute new findings to this field that will improve the implementation process of BSPs.

The present study addressed two experimental research questions and two descriptive research questions. The experimental questions were:

1. Is there a functional relation between the proportion of BSP elements implemented with fidelity by classroom staff and application of the Contextual Fit Enhancement Protocol?

2. Is there a functional relation between implementation of the Contextual Fit Enhancement Protocol and reduction in the level of student problem behavior?

   In addition, the study addressed the following descriptive research questions:

1. Is implementation of the Contextual Fit Enhancement Protocol associated with improved perception of contextual fit for BSPs implemented by classroom teachers?

2. Is implementation of the Contextual Fit Enhancement Protocol perceived as socially valid by members of student support teams?

CHAPTER II

Method

Student Participants

Student participants in the study were two male and two female elementary school students, five to 10 years in age, attending two schools located in a public school district in the Pacific Northwest. Student participants were nominated by the district behavior support coordinator, and selected based on having a technically adequate BSP that was not being implemented with high fidelity or impact. Verification of nominated students was achieved through two to three 20-minute direct observations for each potential participant in a setting suggested by their classroom teacher.

Student Participant 1. Student Participant 1 was a five-year-old male in a half-day general education kindergarten classroom with 27 students, one classroom teacher and two teaching assistants. Both his regular classroom teacher and teaching assistants reported that Student Participant 1consistently engaged in problem behaviors such as disruptive silly noises, out of seat behavior, yelling, off-task and work refusal. His BSP had been designed and initiated six months prior to the onset of the study.

Student Participant 2. Student Participant 2 was a ten-year-old male student in a fourth-grade general education classroom with 25 students and one classroom teacher. According his BSP and his regular classroom teacher, Student Participant 2 engaged in problem behaviors during regular instruction, including making disruptive noises, verbally refusing to work, leaving his chair and wandering around the room, and off task behaviors. His BSP had been designed and initiated ten months prior to the onset of the study.

Student Participant 3. Student Participant 3 was a nine-year-old female student in a third-grade general education classroom with 22 students and one classroom teacher. According her BSP and her classroom teacher, Student Participant 3 consistently engaged in noncompliant behavior which included off-task behavior, not following routines, not completing assignments, as well as leaving her seat and disrupting peers. Her BSP had been put in place six months prior to the onset of the present study.

Student Participant 4. Student Participant 4 was a seven-year-old female student in a second-grade general education classroom with 25 students and one classroom teacher. Her regular teacher reported that Student Participant 4 consistently engaged in disruptive behaviors such as unsolicited verbal outbursts or talking to peers when the teacher is engaged in instruction as well as during group activities when students are supposed to be focused on some task. Her BSP had been designed and initiated six months prior to the onset of the study.

Classroom Teachers

Four classroom teachers participated in this study. All teachers held a degree in education, had received previous training in positive behavior support through district-wide training, and their teaching experience ranged from seven to 27 years.

Teacher Participant 1. Teacher Participant 1had 27 years of experience in working with pre-school and elementary school students. She had a master's degree in elementary education and 23 credit hours in language arts and math. She indicated that she had received district-wide training in positive behavior supports.

Teacher Participant 2. Teacher participant 2 held a master's degree in education and had ten years of experience as a general education elementary school teacher. She had previously received district-wide training in positive behavior support in addition to her university training.

Teacher Participant 3. Teacher Participant 3 had 23 years of experience as a general education elementary school teacher. She had a master's degree in education, and had received training in positive behavior support through university coursework and district-wide training.

Teacher Participant 4. Teacher Participant 4 had a master's degree in elementary education, and 10 years of experience working as a general classroom elementary school teacher. She indicated that she had received training through university coursework and district-wide training in positive behavior supports.

Expert Panel

Behavior support plans were examined by two expert behavior analysts who had professional expertise in function-based support and were not connected to the present research. The two members of the expert panel were individuals with at least five years of research experience on FBA and its use in designing and implementing behavior support plans. Experts were selected based on (a) their documented experience in teaching functional behavioral assessment and BSP design, and (b) their demonstrated publication of peer reviewed original research examining the effects of functional behavioral assessment, and function-based behavior support. The experts were informed that the study focused on variables affecting the contextual fit of BSPs; however they were blind to the specific research questions of the study.

Setting

The study took place in an urban public school district located in a medium-size town in the Pacific Northwest. This school district provides education from kindergarten through high school, and students attending these schools are from diverse socio-economic backgrounds, ranging from lower-to-upper middle class. Specifically, the present study took place in two elementary schools (i.e., kindergarten through fifth grade). Each of the participating schools was

implementing Positive Behavioral Interventions and Supports (PBIS) with documented Tier I fidelity as assessed by the Tiered Fidelity Inventory (Algozzine et al., 2014).

<div align="center">**Dependent Measures**</div>

Direct Observation Data

Direct observation was used to collect data on problem behavior and fidelity of implementation. Each observation session was defined as the first 20 minutes of an instructional period**.** Data collection took place at a time when student FBA indicated that problem behavior was most likely to occur. For Student Participant 1, observations took place during reading class from 10:15 a.m. to 10:35 a.m. During the session, students completed independent work from their workbooks or different reading activities. For Student Participant 2, observations took place during math class from 9:05 a.m. to 9:25 a.m. During this time, the student worked on both tasks guided by the teachers and independent work from his workbook. For Student Participant3, observations took place during math class from 8:55 a.m. to 9:15 a.m. The student completed math activities guided by the teachers and independent work from her bookwork. For Student Participant 4, observations took place during reading class from 12:00 p.m. to 12:20 p.m. The student participated in group activities, worked on tasks guided by the teachers and completed independent work. At the end of each session, observers completed implementation checklists to document fidelity of implementation of the BSP strategies by classroom teachers. Data collectors were graduate students in special education and school psychology trained by the principal investigator, who collected interobserver agreement data.

Fidelity of Implementation

Observers recorded the extent to which the BSP procedures were being implemented by the classroom teacher during the 20 min observation sessions. Fidelity of implementation of BSP strategies was assessed using a checklist created by the research team (see Appendices A, B, C, and D for the implementation checklists for Teacher Participants 1, 2, 3, and 4 respectively) that required direct observations of the BSP procedures defined for each student participant in their BSPs. Each checklist consisted of eight to nine items scored as either "yes," "no," or "no opportunity." Items included (a) one time discreet events (e.g., "When independent assignment is given, teacher pre-corrects by reminding the student behavioral goals, rewards, and asking for help or a break if needed "); (b) conditional probabilities (e.g., "When working on an independent assignment, if the student appropriately asks for a break, teacher grants a 5 min break within 1 min of request "); and (c) rates of behavior (e.g., "During 20 min observation period, teacher provides 5:1 positive (reinforcing) to negative (corrective) statements"). The implementation checklist produced a score that represented the percentage of BSP components implemented with fidelity by classroom teachers. Fidelity of implementation was assessed during observation sessions, including baseline and intervention conditions.

Problem Behavior

Observers used a ten second partial-interval observation system to collect data on problem behavior (see Appendices E, F, G, and H for partial interval data sheets for Student Participants 1, 2, 3, and 4, respectively). Problem behavior was recorded if it occurred at any point during the 10-second interval. Observation sessions were conducted three times per week during baseline and intervention conditions. Problem behaviors included disruptive behavior, off-task behaviors, out of seat, protest/task refusal, and elopement. Disruptive behavior was

defined as "verbal displays that hurt the continuity of the class or the ability of students to hear the teacher, students talking with other students and not listening to the teacher, or physical contact between the students or between the students and the teacher, both subtle and demonstrative (e. g., poking and punching classmates, talking out or talking to peers no connected to class work, making noises during instruction, tearing instructional materials or crumpling paper with hands, taping pencil or other objects on desk and stomping feet)". Off-task behavior was defined as "during work time, student engages in any tasks other than the assigned task or ongoing activity (e.g., looking around the room, playing with items, talking, head on the desk) for more than 5 seconds". Out of seat was defined as "student's buttocks are not in contact with the seat for a minimum of 3 consecutive seconds (at a time student is expected to be seated)". Protest/Task Refusal was defined as "student does not initiate teacher request/direction within 5 seconds saying "no", "I don't want to", "I won't do it" or "not now" to any academic or non-academic request". Finally, elopement was defined as "student leaves designated area without permission (e.g., classroom)". These problem behaviors were identified from FBA and classroom teacher information.

Contextual Fit

Student BSPs were evaluated for contextual fit by the classroom teachers who worked directly with the student using the *Self-Assessment of Contextual Fit in Schools* checklist (Horner, Salentine, & Albin, 2003) at two different times in the study. The *Self-Assessment of Contextual Fit in Schools* is an assessment tool that aims to examine the extent to which the elements of a BSP match the contextual features of the school environment where the BSP will be carried out. The assessment consists of sixteen items which are organized into the following dimensions: (a) knowledge of elements in the plan, (b) skills needed to implement the plan, (c)

values are consistent with elements of the behavior support plan, (d) resources available to implement the plan, (e) administrative Support, (f) effectiveness of the plan, (g) if the behavior support plan is in the best interest of the student, and (h) whether the behavior support plan is efficient to implement (See Appendix I for the *Self-Assessment of Contextual Fit in Sch*ools). The teachers completed first the contextual fit self-assessment during baseline phase and then during intervention condition using a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree), with higher scores indicating greater perceptions of contextual fit. It is important to note that during the intervention condition teachers were asked to rate both the initial plan and improved plans using the same rating scale.

Technical Adequacy

The two expert behavior analysts evaluated the technical adequacy of the BSPs. The experts used the *BSP Critical Features Checklist* (Strickland-Cohen & Horner, 2014), a 20-item instrument that outlines critical elements of a BSP. The experts were asked to indicate whether the BSPs included (a) a definition of problem behavior, (b) identification of the function of the problem behavior (as identified in the FBA), (c) preventative strategies to decrease the likelihood of problem behavior, (d) instructional strategies to teach alternative and desired behaviors, (e) strategies to minimize reinforcement of problem behavior, (f) strategies to maximize reinforcement for alternative and desired behaviors, and (g) plans for implementation and evaluation.to evaluate whether the plans included the BSPs (see Appendix J for the *BSP Critical Features Checklist*) . All the items could be scored either as "yes" or "no" (yes = component present; no = component not present). The experts were informed that the study focused on variables affecting the contextual fit of BSPs; however they were blind to the specific research questions of the study.

Social Validity

At the end of the study, the four classroom teachers completed the *Teacher Questionnaire on Social Validity*. This questionnaire was created by the research team, which included 8 items that sought to better understand teachers' perceptions about the role that a Contextual Fit intervention played in the implementation of BSPs in each of their classrooms. Classroom teachers were asked to indicate the extent to which they agreed or disagreed with each statement presented in the questionnaire using a 5-point Likert scale (1= strongly disagree, 2= disagree, 3=Neutral, 4=agree, 5=strongly disagree). The questionnaire also included three open-ended questions. See Appendix K for the *Questionnaire on Social Validity*.

Design and Procedures

A concurrent single-subject, multiple-baseline design across participants was used to examine a functional relation between the implementation of the Contextual Fit Enhancement Protocol, and (a) increased implementation of BSP elements by teachers and (b) decreased student problem behavior.

Preliminary Observations

After teachers nominated potential student participants, the principal researcher examined the BSPs of each student to obtain specific information about the problem behaviors and the procedures included in their plan. After collecting student information, preliminary direct observations were conducted by the principal investigator to verify that the information included in the BSP was accurate and fit inclusion criteria for the study. In doing this, each student was observed across a period of time and setting to assess to what extent the student's problem behaviors were a barrier to her or his learning process. Both teachers and the parents of students

consented to participation in the study, and students assented to participation following

procedures approved by the University of Oregon Internal Review Board.

Baseline

During baseline, trained observers collected data on student problem behavior and

fidelity of implementation. Classroom teachers continued implementing the BSPs as usual. No

feedback was provided to the teachers regarding plan implementation or student behavior.

Contextual Fit Enhancement Protocol

The Contextual Fit Enhancement Protocol (CF Intervention) involved a 45-min meeting

in which classroom teachers, behavioral specialists, and the principal investigator met to assess

and enhance the degree of contextual fit of BSPs for four elementary school students with

problem behaviors. The logic driving this intervention was based in connecting the degree of fit

for BSP procedures to classroom teachers' knowledge and skills while increasing administrative

support, which in turn would create BSP procedures likely to be implemented with fidelity by

classroom teachers. To achieve this goal, researchers designed the Contextual Fit Enhancement

Protocol, which included five components of contextual fit, including values, skills,

effectiveness, resources, and administrative support. These five components were included

because they are consistently discussed in the literature as being core elements of contextual fit

(Albin et al., 1996; Horner, Blitz, & Scott, 2014; O'Neill et al., 2015; Sandler et al., 2003). In

addition, the protocol included a series of systematic, practical procedures designed to assess and

enhance the fit of the BSP procedures as well as better define contextual variables where such

plans were implemented. Figure 1 shows the Contextual Fit Enhancement Protocol designed for

this study.

The procedures followed during CF interventions were same for all four teacher participants. Prior to meetings with teachers, and based both on direct observation data gathered during baseline condition and the Contextual Fit Enhancement Protocol, the principal researcher proposed specific procedures to improve the fit of the behavioral strategies outlined in each plan. Such specific procedures focused on (a) describing with precision each of the BSP procedures, (b) transforming behavioral concepts into actions,(c) contextualizing procedures for different settings,(d) providing more feedback to implementers, and (e) increasing school administrative support.

Once baseline data showed a consistent pattern of behavior and implementation, the principal researcher contacted each teacher participant and behavioral specialist via email or verbally, to set up a meeting to start the intervention phase of the study. Depending on teachers' availability, each of these meetings was conducted either early in the morning or after class. For Teachers 1 and 3, the meeting was held at 08:00 a.m. at the conference room of the school. For Teachers 2 and 4, this process was conducted at 3 p.m. in their classrooms. At the beginning of each meeting, the researcher explained to teacher participants the goals and procedures that would be addressed during the meeting. Teachers were told that they may ask questions anytime if needed. Following the presentation of meeting goals and procedures to follow, teachers were given a copy of the BSP they were implementing, and a copy of the *Self-Assessment of Contextual Fit in Schools* (Horner, Salentine, & Albin, 2003), and then asked to rate the contextual fit of the BSP.

After teachers completed the self-assessment, the researcher proceeded to present the improved plans to teachers, explaining and describing in detail each modification. For example, Student Participant 1's BSP included among the behavioral procedures, the term "Pre-

corrections." However, the plan did not provide the teacher with any information about when or how to use that strategy. Therefore, the researcher described with precision the strategy for the teacher and provided information to her about how and when to implement it. Another example is the case of Teacher Participant 3, who expressed, "I do not provide positive verbal praise because I feel that the more attention I give the student, the more problem behaviors she exhibits." In this case, the researcher focused on providing information about the importance of reinforcing desired behaviors, and contextualizing the procedures for different settings and instructional activities. For all teacher participants, the researcher used verbal instruction, modeling, practice, and feedback, to present the improved behavioral procedures. At the end of the meeting, teachers and behavioral specialists received a hard copy of the plan that included improvements made during the intervention meeting. It is important to note that (a) no new behavioral strategies were included in the plans, and (b) teachers were not provided with any information or feedback regarding implementation fidelity or student outcomes. The day following the meeting, data collectors continued to collect data on implementation fidelity and student behavior exactly as performed during the Baseline condition. Once each participant teacher had been exposed to the improved plan for at least five sessions, the researcher met again with teachers and behavioral specialists as during the Baseline phase to re-assess contextual fit of the BSPs. This time they were asked to rate both the initial plan, which had been implemented during the baseline phase, and the plan that had been contextually improved.

Contextual Fit Enhancement Protocol

Contextual Fit (CF)

| KNOWLEDGE | VALUES | SKILLS | EFFECTIVENESS & EFFICIENCY | RESOURCES | ADMINISTRATIVE SUPPORT |

POOR CF / GOOD CF (for each category)

KNOWLEDGE
- POOR CF: Assess implementers' knowledge level of BSPs → Establish materials and procedures to provide support → Provide implementers with detailed info about BSP procedures
- GOOD CF: Evaluate and monitor plan implementation

VALUES
- POOR CF: Identify cultural/ value components of the plan that are problematic → Assess and define procedures that are consistent with implementers' values → Include cultural/ value adaptations in the plan
- GOOD CF: Evaluate and monitor plan implementation

SKILLS
- POOR CF: Assess implementers' skill level → Establish materials and procedures to provide support → Provide training, coaching, and performance feedback
- GOOD CF: Evaluate and monitor plan implementation

EFFECTIVENESS & EFFICIENCY
- POOR CF: Define desired impact → Determine perception of BSP effectiveness → Adjust BSP to reach plan with perception of effectiveness
- GOOD CF: Evaluate and monitor plan implementation

RESOURCES
- POOR CF: Identify resources needed → Establish organizational systems that ensure time, materials and funding for implementation → Provide relevant resources or shift plan to match current resources
- GOOD CF: Evaluate and monitor plan implementation

ADMINISTRATIVE SUPPORT
- POOR CF: Evaluate extent of administrative commitment to support implementation → Define procedures/strategies to enhance administrative support for plans implementation → Implement strategies/procedures for improvement
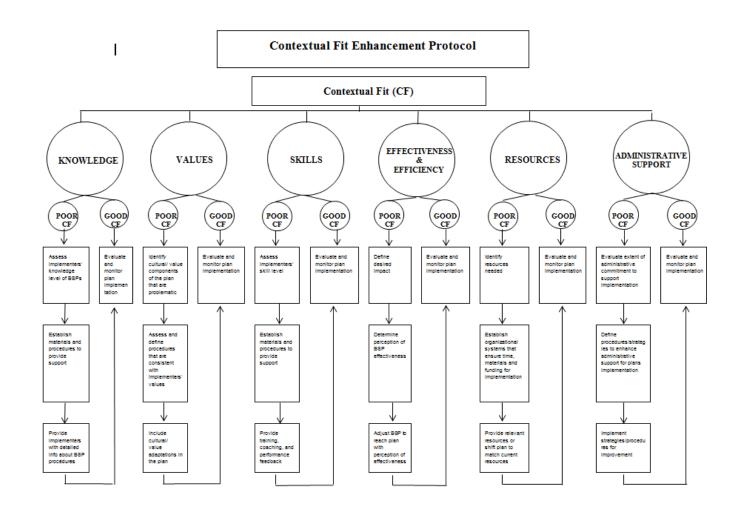- GOOD CF: Evaluate and monitor plan implementation

Figure 1. Contextual Fit Enhancement Protocol

Interobserver Agreement

Interobserver Agreement (IOA) took place during the students' regularly scheduled classes in the regular classroom. The primary observers were graduate students in special education and school psychology trained by the researcher using videos, examples, and on-site observations to a minimum level of 90% total agreement with the researcher prior to beginning formal data collection. The researcher acted as a second observer and independently scored problem behavior and implementation fidelity. IOA was measured for a minimum of 33% of the observation sessions during baseline condition, and 33% of intervention sessions for each student and teacher participants. For problem behavior, IOA was determined by calculating the number of agreements between the two observers on the occurrence and non-occurrence of problem behaviors, divided by the number of agreements plus disagreements and multiplied by 100% of the total. For implementation fidelity, IOA was calculated by taking the number of items on which the two observers agreed and dividing by the total number of items. The observers manually recorded their observations with pencil and paper, and they had a timing device (vibrating timer) to gauge the study's metrics.

Average IOA across student participants for problem behavior was 97%. For implementation fidelity, average IOA was 98% across teacher participants. Table 2 shows the average IOA for each dependent variable by student participant.

Table 2. Interobserver Agreement

Participants	Problem Behavior % Agreement	Implementation Fidelity % Agreement
Participant 1	97	98
Participant 2	96	97
Participant 3	98	98
Participant 4	95	97

CHAPTER III

RESULTS

Direct Observation Data

Direct observation data were collected during 20-minute observation sessions for all four teacher and student participants. Results for teacher implementation fidelity and student problem behavior are displayed in Figures 2 and 3, respectively. Data were collected using a response-guided concurrent multiple baseline design with Participant 1 starting his baseline in session 7 of the study, Participant 2 starting his baseline in session 1, Participant 3 beginning her baseline in Session 7 of the study, Participant 4 starting her baseline in session 1. Due to logistics associated with participant recruitment, baseline data collection for Participants 1 and 3 started later than Participants 2 and 4, however care was taken to ensure that all students had at least five overlapping Baseline data points as recommended by the What Works Clearinghouse (Kratochwill et al., 2010). Student problem behavior and teacher implementation fidelity data were visually analyzed following recommendations given by Horner et al. in 2005, which included: (a) assessing within phase level, trend, and variability of data , and (b) between phase changes in level, trend, variability, immediacy of effect, overlapping data across adjacent phases, and consistency of data patterns in similar phases.

Teacher Implementation Fidelity

Figure 2 shows the percentage of BSP components implemented during 20 min observations in both Baseline and Intervention phases by each of the study's four classroom teachers. The numbers designated for each teacher corresponds to the student participant they work with, 1 with 1, 2 with 2, and so on.

Baseline. During baseline condition, a consistent, low level of implementation fidelity was observed across all four teachers. Baseline data shows that Teacher 1 was not implementing any components included in the BSP.   For Teacher 2, data show high variability and low level of implementation during the baseline phase. The average level of fidelity was 15% of the BSP components defined for Student Participant 2, with a range of 0% to 57%. Similarly, data for Teacher 3 show a stable, low level of implementation fidelity for BSP components as defined for Student Participant 3. The mean level of BSP components implemented by the classroom teacher during the Baseline condition was 16%, ranging from 0% to 25%. Finally for Teacher 4, data show high variability and low level of implementation during the baseline phase. The average level of BSP fidelity implementation for Teacher 4 was 29% of the BSP components, with a range of 0% to 71%.

Contextual Fit Intervention Condition. Following implementation of the Contextual Fit Enhancement Protocol, data show an immediate and sustained increase in the level of BSP components implemented with fidelity across all four classroom teachers. Implementation data show that the mean level of Teacher 1's implementation fidelity during the CF Intervention condition was 75%, with a range of 60% to 85% and a stable trend. The percentage of non-overlapping data between Baseline and CF Intervention phases was 100%. For Teacher 2, implementation data show an instant increase in the percentage of BSP components implemented with fidelity. Although some variability was still observed afterwards, the mean level of teacher implementation fidelity was 67%, ranging from 57% to 100% of the BSP components with no trends. The percentage of non-overlapping data points between baseline and interventions conditions was 92%. Similarly, results for Teacher 3 indicate an instant and sustained increase in the level of BSP components following implementation of the Contextual Fit Enhancement

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Protocol. The mean level of teacher implementation fidelity during intervention was 76%, with a range of 75% to 85% in BSP components and a stable, flat trend. There were no-overlapping data points between the baseline and CF improvement conditions. Finally, Teacher 4's data show an immediate change in trend and level of implementation fidelity. The mean percentage of BSP components implemented with fidelity was 83%, with a range of 71% to 100%. The percentage of non-overlapping data points between the baseline and interventions conditions was 96.4%.
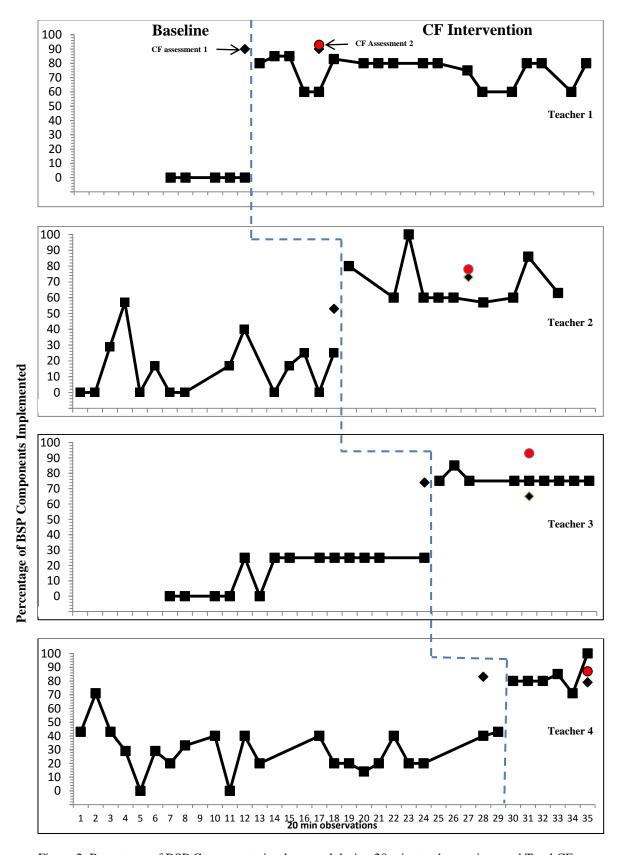
Figure 2. Percentage of BSP Components implemented during 20 minute observations and Total CF scores

Problem Behavior

The percentage of 10 sec intervals with problem behavior during baseline and intervention phases exhibited by the four student participants is presented in Figure 3.

Baseline. During the Baseline phase, levels of problem behavior were moderate to high with an increasing trend across all four participants. Student Participant 1's data show that the mean percentage of intervals with problem behaviors during 20 min observations was 62%, ranging from 33% to 80%. Student Participant 2's baseline data show a moderate level of problem behavior in a flat trend characterized by low variability with the exception of session 17. According to the classroom teacher, the high level of problem behavior observed during this session was due to the fact that Student Participant 2 was not allowed to stay longer in the resource room. The mean percentage of intervals with problem behaviors during the Baseline phase was 43%, ranging from 24% to 80%. Similarly, during the baseline phase, the level of problem behavior exhibited by Student Participant 3 was moderate with a consistent trend over time. The average percentage of intervals with problem behaviors during baseline observations was 38%, ranging from 27% to 53% of the intervals. Finally, baseline data showed that Student Participant 4's level of problem behaviors was moderate to high with a decreasing trend and high variability over time. The mean level of problem behaviors during baseline condition was 41% of the intervals, ranging from 25% to 78% of the intervals.

Contextual Fit Intervention Condition. Following introduction of the Contextual Fit Enhancement Protocol, an immediate and consistent decrease in problem behavior was observed across all four student participants. Student Participant 1's data showed that there was an immediate change in the level of problem behavior, dropping from 67% to 15% for the first data point collected in this phase. In addition, the intervention data showed a steadily decreasing

pattern in the percentage of intervals with problem behaviors. The mean percentage of problem

behaviors during 20 min intervention sessions was 14%, ranging from 3% to 24%. When

examining overlapping data across phases, the percentage of non-overlapping data between

baseline and intervention phases was 100%. Similarly, for Participant 2, an immediate decrease

in the level of problem behaviors was observed, which also initiated a decreasing trend. The

mean level of occurrence for problem behaviors during the intervention condition was 14% of

intervals, with a range from 3% to 21% found within intervals. The percentage of non-

overlapping data between baseline and intervention phases was 100%. Participant 3's data

showed that following implementation of the CF intervention, both an immediate change in the

level and a continuous decrease of problem behavior were observed when compared to baseline

phase. The mean level of problem behaviors during the intervention condition was 21% of the

intervals, ranging from 10% to 25%. The percentage of non-overlapping data between baseline

and intervention conditions was 100%. Finally, when the CF intervention was implemented for

Participant 4, an immediate and consistent change in both level and trend was observed. The

average percentage of intervals with problem behaviors during intervention was 15%, with a

range of 7% to 19% found in the intervals. When examining overlapping data points across

phases, the percentage of non-overlapping data points between baseline and intervention phases
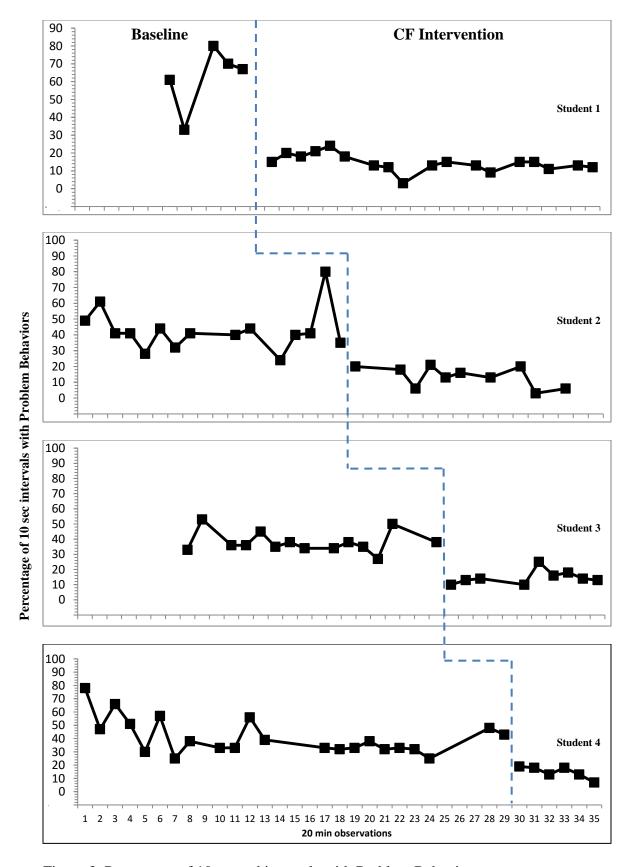
was 100%.

Figure 3. Percentage of 10 second intervals with Problem Behaviors

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Statistical Analysis of Direct Observation Data

Tau U was the statistic used to supplement visual analysis in the current study. This statistic technique was selected because it combines nonoverlap between phases with trend from within the intervention phase. In addition, it provides the option of controlling undesirable Phase A trend (Parker, Vannest, Davis, & Sauber, 2011). Student problem behavior results indicate that for Student Participant 1, Tau U = 1.0 (p = .0008). For Student Participant 2, Tau U = 1.0 (p = .0000). For Student Participant 3, Tau U = 1.0 (p = .0001), and for Student Participant 4, Tau U = 1.0 (p = .0002).

For fidelity of implementation, for Teacher 1, Tau U = 1.0 (p = .0008). For Teacher 2, Tau U = .99 (p = .0000). For Teacher 3, Tau U = 1.0 (p = .0001), and for Teacher 4, Tau U = .99 (p = .0002). These data showed that the effect of the Contextual Fit Intervention on student behavior and implementation fidelity was statistically significant.

Contextual Fit

Contextual fit of BSP was assessed by participating classroom teachers at two points in time using the standards described in *Self-Assessment of Contextual Fit in Schools* (Horner, Salentine, & Albin, 2003). The first assessment was conducted at the end of baseline phase. Each teacher was asked to assess the extent to which they felt the BSP that they were implementing was contextually appropriate. Teacher 1 completed the self-assessment in session 12, Teacher 2 in session 17, Teacher 3 in session 24, and Teacher 4 in session 29. Once each participant teacher had been exposed to the improved plan for at least five sessions, they were asked to rate both the initial plan, which had been implemented during the baseline phase, and the plan that had been contextually improved. Teacher 1 completed the second self-assessment in session five of intervention phase, Teacher 2 in session 9, Teacher 3 in session six, and Teacher 4

in session six. Overall, data from the first CF assessment indicated that BSPs were scored as having a low to moderate degree of contextual fit. Conversely, following implementation of the improved BSPs, teachers rated the plans as having a moderate to high contextual fit. Table 3 shows the average score for each domain awarded by participant teachers during the baseline and intervention conditions.

Table 3. Average Contextual Fit Scores Awarded by Teachers for Each Domain during Baseline and Contextual Fit Intervention Conditions

Contextual Fit Domain	Teacher 1			Teacher 2			Teacher 3			Teacher 4		
	Baseline	Initial Plan	CF Improved plan	Baseline	Initial Plan	CF Improved plan	Baseline	Initial Plan	CF Improved plan	Baseline	Initial Plan	CF Improved plan
Knowledge of BSP elements	5.5	5.5	6.0	5.0	5.0	5.0	5.0	3.0	6.0	5.0	4.5	5.5
Skills to implement BSP	5.5	6.0	6.0	5.0	5.0	5.0	5.0	4.0	6.0	5.0	5.5	5.5
Values consistent with BSP	6.0	6.0	6.0	5.5	5.0	5.0	5.0	4.5	6.0	5.5	5.5	6.0
Resources to implement BSP	5.5	5.0	5.5	1.0	4.0	5.0	4.5	5.5	6.0	6.0	5.5	5.5
Administrative support	5.5	5.5	6.0	2.5	4.5	5.5	4.5	5.5	5.5	4.0	3.5	4.5
Effectiveness of BSP	5.0	6.0	6.0	1.0	4.0	4.5	3.5	3.0	5.5	5.0	4.5	5.5
BSP is in the best of student	6.0	6.0	6.0	3.5	4.0	4.5	4.5	3.5	6.0	5.5	5.5	6.0
Efficiency	5.0	5.0	5.0	3.0	5.0	5.0	5.0	3.5	5.5	5.0	5.0	5.0
Mean	5.5	5.6	5.8	3.3	4.6	4.9	4.6	4.1	5.8	5.1	4.9	5.4

Technical Adequacy

Student behavior support plans were evaluated for technical adequacy by two behavior support experts using the *Critical Features Checklist* (Strickland-Cohen & Horner, 2012). The checklist requested that experts indicate whether each plan included: (a) definitions of problem behavior, (b) identification of the function of problem behaviors (as identified in the FBA), (c) preventative strategies to decrease the likelihood of problem behaviors, (d) instructional strategies to teach desired alternative behaviors, (e) strategies to minimize reinforcement of problem behaviors, (f) strategies to maximize reinforcement for desired alternative behaviors, and (g) plans for implementing behavioral procedures and their evaluation. The experts scored the four behavior support plans on a scale ranging from zero to 20, with higher scores indicating higher technical adequacy. Thus, highly technically adequate plans will be those that (a) included all or most of the aforementioned critical features, and (b) incorporate evidence-based behavioral procedures. Conversely, moderately technically adequate plans are those that missed some features, but that included sufficient to be implemented. Technical adequacy scores showed that BSPs were assessed as highly technically adequate in two cases and moderately technically adequate in two cases. However, all plans contained key features, including defined function, a competing alternative behavior, strategies for preventing problem behaviors, strategies for reinforcing alternative/desired behaviors, and plans for assessing impact of the plans on student outcomes. Table 4 shows technical adequacy scores from the two experts.

Table 4. Technical Adequacy Scores

Plans	Expert 1	Expert 2
Plan 1	9	7
Plan 2	13	18
Plan 3	8	6
Plan 4	14	14

Social Validity

The four classroom teachers completed the *Teacher Questionnaire on Social Validity* at the conclusion of the study. This questionnaire included 8 items that sought to better understand teachers' perceptions about the role that a Contextual Fit intervention played in the implementation of BSPs in each of their classrooms. Classroom teachers were asked to indicate the extent to which they agreed or disagreed with each statement presented in the questionnaire using a 5-point Likert scale (1= strongly disagree, 2= disagree, 3=Neutral, 4=agree, 5=strongly disagree). The questionnaire also included three open-ended questions described below. Three teachers strongly agreed and one agreed that the contextual fit process improved the impact of BSPs on their students, both decreasing problem behaviors and increasing desired behaviors (M = 4.8), and making it clearer to teachers in how to best use a BSP plan in their classrooms or other settings (M = 4.8). When asked whether addressing contextual fit had improved implementation of the BSP, two teachers indicated strong agreement, and two of them, agreed.

Moreover, three of the four teachers agreed and one strongly agreed, that the contextual fit process made elements of the BSP more consistent with their values about teaching and behavioral support (M = 4.3), and that core components of the BSP were not changed after the intervention, but the manner in which they implemented those components was changed (M =

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4.3). Additionally, teachers were asked whether the contextual fit intervention process improved the degree of effort and stress needed to implement the BSP. Three teachers indicated agreement, and one of them neither agreed nor disagreed ($M = 3.8$). When they were asked to rate the extent to which the contextual fit process had improved the level of administrative support they had received to implement the BSPs, three teachers indicated a "neutral response," and one agreed ($M = 3.3$). Finally, teachers were asked whether the contextual fit process should be used in all future behavioral support planning in the district. All the teachers indicated agreement with that statement ($M = 4.0$). A summary of this data is presented in Table 5.

Responses from the open-ended section showed that the contextual fit intervention significantly improved the teachers' understanding of the BSPs, which in turn helped them improve implementation and decrease student problem behaviors. Additionally, teachers indicated that the contextual fit process clarified for them how to better implement and support students in the classroom. When they were asked to provide suggestions for how to improve contextual fit dynamics associated with behavior support in their district, teachers suggested: (a) including contextual fit interventions at the beginning of the year or when BSPs are designed, (b) providing teachers with better training for students with special needs, (c) providing/increasing counseling and mental health services for students receiving behavior support, and (d) implementing contextual fit interventions in other classrooms. Finally, teachers were asked whether they would recommend implementation of contextual fit interventions to other teachers. Responses showed that all participating teachers would recommend implementing the contextual fit intervention process at other schools.

Table 5. Teacher Responses to the Teacher Questionnaire on Social Validity

Item	Teacher 1	Teacher 2	Teacher 3	Teacher 4	*M*
I believe the process of addressing contextual fit improved implementation of the Behavior Support Plan (BSP)	5	4	5	4	4.5
I believe that the core elements of the BSP did **not** change, but that the way we implemented those elements did change with the intervention	4	4	4	5	4.3
The contextual fit process made it more clear how to use the BSP in my classroom/setting	5	4	5	5	4.8
The contextual fit process made the elements of the BSP more consistent with my values about teaching and behavior support	4	4	5	4	4.3
The contextual fit process improved the level of administrative support I received to implement this BSP	3	3	4	3	3.3
The contextual fit process improved the impact of the BSP on my student's behavior (decrease in problem behavior, increase in appropriate behavior)	5	4	5	5	4.8
The contextual fit process improved the degree of effort and stress needed to implement the BSP	4	4	4	3	3.8
The contextual fit process should be used in all future behavior support planning in the district.	4	4	4	4	4.0
M	4.3	3.9	4.5	4.2	

Note. Likert Scale for participant responses ranged from 1=Strongly Disagree to 5=Strongly Agree.

CHAPTER IV

DISCUSSION

Behavior support plans that have been designed from functional assessment information, are consistent with principles of applied behavioral analysis, and that include evidence-based practices, are likely to be more effective (Carr et al., 1999; Crone, Hawken, & Horner, 2015; O'Neill et al., 2015; Shepherd & Linn, 2015). However, there is a set of contextual variables that must not be underestimated when designing and implementing BSPs. Contextual fit is a construct defined as the match between the strategies, procedures, or elements of an intervention, and the values, needs, skills, and resources of those who will implement and experience the plan. The optimum goal for schools is to design plans that are both effective and a good fit with the skills, values, and resources of the school staff who will implement such procedures. The present study used a multiple baseline design across four students and their classroom teachers to examine the role of contextual fit on implementation fidelity of BSPs and student behavior. Results indicated that (a) when Baseline Condition plans were not implemented, problem behavior remained high, (b) contextual fit interventions needed one-45 minute meeting in which the researcher, behavior specialist and the classroom teacher met to enhance the contextual fit of the plan. This in turn improved (a) the contextual fit of the BSP, b) its implementation fidelity, and (c) student behaviors. Further, classroom teachers considered the CF Intervention practical and socially valid. In this chapter, results of the study are discussed and interpretations of the findings presented. The limitations of the current study are also presented, along with directions for future research and implications for practice and training.

High Level of Problem Behavior and Low Level of Implementation during Baseline Phase

Direct observation data were collected during 20-min observation sessions on student behavior and teachers implementation fidelity during the Baseline phase. Although all student participants had a technically adequate BSP in place, observation data showed that participant students exhibited moderate to high levels of problem behaviors, including disruptive behaviors (e.g., making disruptive noises with objects or verbally, yelling, and verbal outbursts) and high levels of non-compliant behaviors (e.g., off-task, not following routines, and not completing assignments). Across the four student participants, the mean percentage of intervals with problem behaviors during 20 min observations was 46%, ranging from 24% to 80% of the intervals. This pattern is highly problematic for both students with problem behaviors, their peers, and their teachers. There is a significant body of research showing that behavior issues such as disruptive behaviors, off-task behaviors, and non-compliant behaviors, can consume significant instruction time and negatively affect the learning environment for all students (Algozzine, Putnam, & Horner, 2010; DuPaul, Laracy, & Gormley, 2013). Furthermore, students exhibiting problem behaviors experience negative consequences, including removal from classrooms, suspensions, and peer rejection, which may impact their overall educational success (Benner, Allor, & Mooney, 2008; McIntosh, Chard, Boland, & Horner, 2006).

Similarly, implementation fidelity data showed that classroom teachers either were not implementing the procedures included in the students' BSP, or the percentage of BSP components was low and inconsistently implemented. For example, direct observation data showed that Teacher Participant 1 did not implement any of the BSP components, and that Teacher 4's implementation fidelity ranged from 0% to 75% of the components, showing an inconsistent pattern of implementation. The mean percentage of BSP components implemented

by the classroom teachers was 15%, with a range of 0% to 75% of the components during the baseline condition. Although all four BSPs included evidence-based strategies and each plan was assessed as being moderately to highly technically adequate, the data confirms the finding that implementation fidelity remains a critical factor in obtaining desired outcomes (Fixsen, D. L., Blase, K. A., Metz, A., & Van Dyke, M., 2013a; Kaderavek & Justice, 2010; Odom et al., 2010).

Effects of the CF Intervention on Implementation Fidelity of BSP Components

A single-subject, multiple-baseline design across four teacher participants was used to examine the effects of the CF Intervention on implementation fidelity and student problem behaviors. Visual analysis of the direct observation data indicated an immediate and consistent increase in teacher implementation fidelity following implementation of the CF Intervention. No overlapping data between baseline and intervention phases were observed on teacher participants 1, 2, and 3. Teacher 4's data showed no overlapping data in 96% of the sessions between the two phases. During the CF Intervention condition implementation fidelity averaged 75% across the four teachers, with a range of 57% to 100% of the BSP components. One example of the increase in implementation fidelity was observed with Teacher 1, who did not implement any of the BSP procedures during the baseline phase, but followed the CF Intervention process rigorously and achieved implementation fidelity of 75%. These data document a functional relation between implementation of the CF Intervention and an increase in teacher implementation fidelity of BSPs. Moreover, descriptive data showed that during intervention conditions there was a substantial increase in the implementation of prevention strategies (e.g., reminding students about behavioral and academic expectations, pre-correction, prompting of alternative behaviors), teaching strategies (e.g., teaching alternative and desirable behaviors), and

consequence strategies (e.g., providing descriptive verbal praise for appropriate behaviors, use of Color Spots, and prompting behavioral expectations at earliest signs of problem behaviors). Although an increase in implementation of BSP procedures was observed during intervention conditions, it was difficult for all teachers to achieve the ratio of 5:1 positive (reinforcing) to negative (corrective) statements during observation sessions. These initial results suggest that when teachers (a) perceive that they receive more administrative support to implement the plans, (b) perceive increased feedback in regards to implementation, (c) perceive a collective commitment to improve BSPs, and (d) know how and when to implement specific behavior procedures, implementation fidelity increases.

Effects of the CF Intervention on Student Behavior

Following implementation of the CF Intervention and increases in the fidelity of behavior support plan implementation, direct observation data showed an immediate and consistent decrease in student problem behaviors with no overlapping data between baseline and intervention phases for all four student participants. During the intervention phase, the mean percentage of 10-sec intervals with problem behaviors across the four participants was 16%, with a range of 3% to 25% of intervals. These data document a functional relation between implementation of the CF Intervention and a decrease in problem behaviors across the four student participants. These results suggest that student outcomes improved when evidence-based behavioral support strategies were implemented with fidelity by classroom teachers. Furthermore, results of the present study support the assumption that interventions implemented with high fidelity results in improved outcomes, whereas low fidelity leads to poorer outcomes (Al Otaiba & Fuchs, 2006; Fixsen et al., 2013a; Horner, Blitz, & Ross, 2014). The Contextual Fit Intervention provides an example of how school teams can improve the contextual fit of

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procedures included in student BSPs. Implementation and student behavior results document that when classroom teachers (a) had a better understanding of the behavior procedures, (b) received more and more specific feedback about their implementation, and (c) perceived high levels of administrative support, there was a substantial increase in implementation fidelity, and as a consequence of this, a decrease in student problem behavior.

Effects of the CF Intervention on Perceived Contextual Fit

Contextual fit refers to the extent to which a behavior support plan reflects the values, skills, resources, and administrative support of the school personnel (Albin et al., 1996; O'Neill et al., 2015). The degree of contextual fit of an FBA-based behavior support plan will likely serve as a determining factor in the extent to which its interventions are implemented successfully (Horner et al., 2014). In the present study, the contextual fit of each plan was assessed by classroom teachers at two points in time using the *Self-Assessment of Contextual Fit in Schools* (Horner, Salentine, & Albin, 2003). Data from the first CF assessment indicated that BSPs were scored as having a low to moderate degree of contextual fit. For instance, Teachers 2 and 3 found that their plans included strategies (a) that were not perceived as efficient to implement, (b) that were not focused on the best interests of the student, and (c) that both will not be effective in achieving outcomes and preventing future occurrence of problem behaviors. Furthermore, these teachers indicated that both the resources available and administrative support provided to implements their plans were either limited or no support was provided.

Following implementation of the CF Intervention, classroom teachers were asked to rate the improved plans. CF Data showed that teachers scored these improved plans as having a moderate to high degree of contextual fit. All teachers indicated that (a) they were aware of the components in the BSP, (b) they had the skills and knowledge to implement the plan, (c) the

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plans reflected their values, (d) they had resources and support to implement the plans, and (e) the plan was efficient, effective and in the best interest of the student. Specifically, the major increases in contextual fit scores were observed in regard to school administrative support, the effectiveness of BSPs, resources to implement plans, and the knowledge and skills to implement such plans. Although the difference between the initial CF scores and the second CF assessment was not substantially different, initial findings suggest that the CF Intervention improved teachers' perceptions on a variety of variables related to individuals and the specific context in which the plan was being implemented. Moreover, the results of this study suggest that school teams should ensure that behavior support plans are assessed, both before and during its implementation, by staff who will be implementing these plans to assess whether the intervention procedures match the school's contextual features. Thus, this research supports current literature on the subject that describes the variables considered to be critical for school teams to utilize when designing and implementing function-based behavior support plans.

Social Validity

Social validity refers to the acceptability of and satisfaction with intervention procedures, as well as the effects produced by these procedures in a specific population (Gresham & Lopez, 1996). Upon completion of the current study, teacher participants were asked to complete the *Teacher Questionnaire on Social Validity.* This questionnaire included 8 items that sought to better understand teachers' perceptions about the role that contextual fit improvement played in the successful implementation of BSPs in their classrooms. The results indicated that the Contextual Fit Intervention process was considered feasible and socially relevant by all four teacher participants. Teacher participants agreed that the Contextual Fit process (a) improved the positive impact of the BSPs on their students, both decreasing problem behaviors and increasing

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desired behaviors, (b) made it more clear how to use BSPs in their classrooms or settings, (c) improved implementation of BSPs, (d) made elements of the BSP more consistent with their values about teaching and behavior support, and (e) lessened the degree of effort and stress levels needed to implement the BSPs. Furthermore, all teachers in this study recommended the use of Contextual Fit Intervention at other schools. These results suggest that this intervention was perceived as feasible for implementation by typical school staff, effective in addressing a socially important issue within schools, and a cost effective strategy to improve implementation of BSPs. Furthermore, this information contributes to current literature which suggests that interventions considered acceptable by their implementers are more likely to be implemented with fidelity (Gresham, MacMillan, Beebe-Frankenberger, & Bocian, 2000; Vance, Missall, & Bruhn, 2016).

Implications for Future Research

Recent research has produced compelling claims which support the importance of contextual fit in regard to fidelity of implementation, perceived efficiency (time, money, personnel), and desired outcomes for students receiving specific interventions (Benazzi, Horner, & Good, 2006; Crone, Hawken, & Horner, 2015; O'Neill et al., 2015; Sandler, Albin, Horner, & Yovanoff, 2003). However, there is a dearth of systematic studies that examine issues related to contextual fit when implementing evidence-based practices in schools. This research study is targeted at adding more evidence on this subject by examining the impact of a Contextual Fit intervention on implementation fidelity of BSPs, and its effect on student outcomes. Although the results of this study provide promising evidence on the effectiveness of the Contextual Fit Enhancement protocol to improve the contextual fit of BSPs in schools, further research should be conducted to (a) replicate this study's preliminary results, (b) develop technically adequate

measures of contextual fit, and (c) define critical features of training in contextual fit for school teams.

Preliminary findings of this study support the assumption that behavior support plans that are both technically adequate and contextually appropriate will likely be implemented with fidelity and produce desired outcomes. Although the results were positive, additional experimental studies that focus on examining how the CF intervention works for other demographics are needed. The present study was conducted in two urban elementary schools located in the Pacific Northwest. Further research should be conducted in schools with different geographic and socio-economic characteristics to assess external validity of the findings, and test the social validity of the methods and procedures. It is possible that with participants from different regions, or from other types of schools (i.e., rural schools, middle schools, etc.), findings may be different, providing other insights and prodding new questions.

In addition to replicating the present study's preliminary results, research is needed to further define the core elements of contextual fit. According to Horner, Blitz, and Ross (2014), the construct of contextual fit has primarily been discussed as a general concept without defining operationally its elements and practical implications. Attempting to close this research gap, Horner and colleagues proposed eight core elements of fit, and a set of application questions for each element. These core elements include (a) the need of a specific intervention, (b) a clearly defined intervention method, (c) an effective intervention supported by empirical evidence, (d) an efficient intervention process, (e) skilled and knowledgeable implementers, (f) a culturally relevant intervention appropriate to the setting, (g) resources needed to implement the intervention, and (h) school and district administrative and organizational support. Although there seems to be a general agreement in the field that contextual fit is a multifaceted construct

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which includes variables related to both the people implementing and receiving interventions, and the setting where the intervention will be implemented, there is no evidence showing how and to what extent each of these elements affect implementation of evidence-based practices. Future research should focus on defining and explaining which elements of contextual fit are critical for improving effective implementation, and how each element interacts with each other in an implementation process. Defining critical components of fit will not only allow the field to start a research direction that will contribute to improving implementation of evidence-based practices in different settings, but will also develop efficient, valid and reliable measures of contextual fit.

Future research should also focus on developing technically adequate measures of contextual fit given the shortage of metrics existing to assess contextual fit. Within the limited options for measuring contextual fit is the *Self-Assessment of Contextual Fit in Schools* proposed by Horner and colleagues in 2003, which was used in the current study. This tool has often been used in several studies to assess the contextual fit of behavior support plans in school, home, and community settings (Benazzi, Horner, & Good, 2006; Pinkelman & Horner, in review; Sandler et al., 2003; Strickland-Cohen & Horner, 2015). However, to date no systematic studies have documented its psychometric properties. Thus, potential research studies should first focus on establishing the extent to which this self-assessment tool is valid and reliable, not only in schools but in other non-academic settings as well.

Furthermore, future research should identify the most efficient, accurate, and objective ways to conduct assessments of contextual fit in schools. In the present study, contextual fit of BSPs was assessed by teachers at two different points in time using the aforementioned self-assessment scale. It is important to note that at the beginning of this study, BSPs had not been

assessed, teachers did not know this measure, and plans were not obtaining desired outcomes. Questions regarding when and the frequency with which contextual fit should be measured (i.e., beginning of intervention, during intervention, end of intervention), who should be part of the assessment (i. e., classroom teachers, behavioral specialists, administrative staff), and efficient strategies for school teams to review and make decisions on contextual fit data, need to be answered. Moreover, future research should pay attention to the challenge of assessing perceptions when school teams examine contextual fit. Current assessment tools (e.g., *Self-Assessment of Contextual Fit in Schools)* rely on implementers' perceptions to evaluate the degree of fit for a given intervention. This is problematic given the social, administrative, interpersonal, professional, and personal variables found in schools, which can influence how a student or teacher perceives the implementation process, contextual appropriateness, and outcomes of an intervention. These concerns could be observed in the study during the assessment of contextual fit phase. For instance, although all teachers verbally acknowledged that improved plans had made a difference on implementation and student outcomes, they would not record those perceptions on the self-assessment. While data documented a strong link between use of the Contextual Fit Enhancement Protocol and improved fidelity, the study does not provide strong evidence for use of the protocol and improved scores on the *Self-Assessment of Contextual Fit in Schools*. These issues make it unclear whether changes with implementation fidelity were produced by manipulation of contextual fit, or if the measure of contextual fit used was insufficient. Thus, future research should also focus on identifying alternative assessment approaches that supplement self-reporting data to make it more accurate and reliable.

Similarly, research is needed to investigate the critical features of training in contextual fit necessary to help teams build contextually adequate behavior support plans. A significant

body of research demonstrates that professional development and training should be multidimensional, based on the results of student performance and implementation data, as well as information about knowledge gaps (Desimone, 2009; Fixsen et al., 2005; Flannery, Fenning, Kato, & McIntosh, 2014; Gregory et al., 2014). However, no studies focused specifically on the critical features of training in contextual fit have been conducted. Research should then focus on (a) defining core content needed for effective training sessions, (b) identifying efficient and effective strategies to deliver training in schools, (c) defining strategies for data collection and decision-making, (d) identifying optimal ways to provide coaching, and (e) defining the level of training and expertise required for school and district coaches to be effective support staff.

Implications for Practice and Training

Designing technically adequate behavior support plans is not enough to ensure that the procedures included in the plan will be implemented with fidelity by school staff which will also improve student outcomes. Although there is an extensive body of empirical evidence which indicates that function-based behavior support plans are likely to be more effective and efficient (Dunlap & Fox, 2012; Filter & Horner, 2009; Moreno, Wong-Lo, & Bullock, 2014; Preciado, Horner, & Baker, 2009; Sanford & Horner, 2012; Strickland-Cohen, & Horner, 2015), there is a set of contextual variables that must not be undervalued when designing and implementing effective BSPs. This study presents preliminary findings supporting the efficacy of the CF Intervention, which was designed to support classroom teachers and behavioral specialists to improve the degree of contextual fit for four elementary school students with problem behaviors. The CF Intervention was designed based on the assumption that when procedures included in the plan do not match with the values, skills and knowledge of the people responsible for implementation, and the resources needed to implement the plan, procedures will not likely be

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implemented with fidelity and produce the desired student outcomes. Study findings suggested

that when classroom teachers (a) had a better understanding of behavioral procedures being used,

(b) received systematic, specific feedback about their implementation, and (c) perceived high

levels of administrative support, and (d) perceived a collective commitment to improve BSPs,

there was a substantial increase in implementation fidelity, and as a consequence, a decrease in

student problem behavior. Implications of these findings for practice and training by school and

district support teams are discussed below.

The current study provides an example of how a 45-minute meeting, in which

implementers and this researcher worked together to assess and improve the fit of procedures

included in the BSPs, can be an efficient and effective way to improve support plans that are

technically adequate but have a low degree of contextual fit. As a consequence, such plans were

not being implemented with fidelity nor were they obtaining desired outcomes. The support

provided to implementers during the Contextual Fit Intervention involved (a) describing with

precision each of the BSP procedures; (b) transforming behavioral terms into actions;(c)

contextualizing procedures for different settings;(d) providing more feedback to implementers;

and (e) increasing administrative support. It is necessary to note that no changes were made to

the core BSP procedures, and that BSPs were assessed as highly technically adequate in two

cases, and moderately technically adequate in two cases. However, in all four cases, the plans

contained key features, including defined function, a competing alternative behavior, strategies

for preventing problem behaviors, strategies for reinforcing alternative/desired behaviors, and

plans for assessing the impact of BSPs on student outcomes. This shows that although not all

these plans included each of the critical features needed in technically-sound BSP plans, these

were sufficiently technically adequate given that when they were improved and implemented with fidelity, there was a substantial decrease in student problem behaviors.

The logic driving the Contextual Fit Intervention was based in connecting the degree of fit of BSP procedures to classroom teachers' knowledge and skills while increasing administrative support, creating BSP procedures likely to be implemented with fidelity by classroom teachers. In addition, intervention was guided by a protocol that included a series of procedures for improving contextual issues. The proposed protocol was based on both the current definitions of contextual fit and the assumptions that contextually appropriate plans will often lead to improved outcomes. Such a protocol includes five components (i.e., values, skills, effectiveness, resources, and administrative support), which are consistently discussed in the literature as being core elements of contextual fit (Albin et al., 1996; Horner, Blitz, & Scott, 2014; O'Neill et al., 2015; Sandler et al., 2003). In addition, we proposed a series of systematic procedures for implementers which are designed to create an adequate fit for BSP procedures, defined as connecting the unique contextual variables in the setting with the plans to be implemented. Based on the results of the current study, we propose that district and school teams establish systems to embed the contextual fit process as a key component that should be addressed during typical design and implementation of behavior support plans. Thus, using the tools and procedures presented in the Contextual Fit Intervention and proposed protocol, school teams may be able to (a) develop more contextually appropriate and efficient plans, (b) assess to what extent BSP procedures are contextually appropriate before investing in direct implementation efforts, (c) improve BSPs that are not obtaining desired outcomes, and (d) identify contextual issues that must be modified to obtain high levels of implementation fidelity and improved student outcomes.

Moreover, district and school administrators should include in their academic action plans professional development and coaching activities for school teams that focus on core components of fit, and strategies to assess and enhance contextual fit of BSPs. There is empirical evidence demonstrating the effectiveness and efficiency of training methods on behavior support for school personnel (Loman & Horner, 2014; Strickland-Cohen & Horner, 2015). However, most training methods focus mainly on teaching school teams the technical elements a sound plan should include (i.e., use of FBA information, selection of alternative and desired behaviors, identification and selection of feasible function-based antecedents, teaching and consequence strategies, and design of BSP implementation and evaluation plans), with little or no attention focused on how to address contextual variables in the development of BSPs.

To address these concerns, we recommend that training and professional development should also focus on providing school teams with the skill-sets and sufficient knowledge about key components of contextual fit. Training content for school teams might include defining the importance of contextual fit for implementation and student outcomes, strategies and tools for measuring contextual fit, the role of administrators, teachers, and behavioral specialists when designing, implementing, and evaluating BSPs, and guidelines for improving the contextual fit of plans. Furthermore, coaching should also be provided to assist school teams apply knowledge of new skills and practices received during training to the needs of the local school and cultural context. Some tasks that can be supported by coaches are (a) use of contextual fit assessment tools, (b) collection and interpretation of contextual fit data, (c) identification of specific procedures to improve the contextual fit of plans, and (d) coordination of actions among different school parties (i.e., classroom teachers, behavioral specialists, administrative personnel, and family members). Specifically, we consider that given their specialized role in supporting both

the academic and behavioral needs of students, and their background and training in assessment and evidence-based interventions, behavioral specialists and school psychologists are in a natural position to ensure the implementation of actions intended to improve contextual fit of BSPs. This study's results indicate that the Contextual Fit Enhancement Protocol provides an efficient and effective model which can be utilized by these professionals, not only during the typical design and implementation process for behavior support plans, but also to assess and improve the contextual fit of plans when they are not producing desired outcomes.

In addition to better in-service training and increased coaching capacities, we recommend that university special education and school psychologist preparation programs need to include content on contextual fit in their curriculum. This will provide professional educators with the sufficient skills and knowledge to design and implement technically sound and contextually appropriate behavior support interventions.

Limitations

Although findings from this study have important potential implications for practice, training, and future research, there are limitations that should be considered when interpreting the results. First, the participants in this study, which included four teachers and four students from the same school district, limits its application to other regions of the United States, many which have vastly different geographic and socio-economic characteristics. Furthermore, student participants in the study were individuals with a BSP in place who exhibited moderate problem behaviors. Therefore, it is possible that including participants from different regions, school districts, or participants with from other school levels (i.e., middle schools) in the same region, and students with more severe and difficult to address problem behaviors, the findings may be different. Moreover, all four teacher and all four student participants were recruited from

elementary schools implementing the SWPBIS framework, so teachers may have had more skills and knowledge about progressive behavior support methods than teachers in schools not implementing similar approaches. Thus, further research is needed to determine the extent to which this study's findings can be generalized to individuals with characteristics that differ from those of study participants, or that are not in schools currently implementing SWPBIS.

There is another limitation that must be considered to assess the measure of contextual fit used in this study. We used the *Self-Assessment of Contextual Fit in Schools* (Horner, Albin, & Salentine, 2003), which has been used in other studies to assess the contextual fit of behavior support plans in school, home, and community settings. Although this self-assessment includes items that examine all core components of fit discussed in the field's literature, to this date no systematic studies have documented psychometric properties for such measures that allow its effective use in evaluating contextual appropriateness of interventions. Furthermore, another challenge that should be considered when interpreting these results is the fact that this self-assessment relies on implementers' perceptions to assess the degree of fit of an intervention. This may be problematic due to the social, administrative, interpersonal, professional, and personal variables interacting in a given school, factors which might affect how a person perceives the implementation of an intervention, and in turn, the assessment data. In the future, research should be conducted to develop alternative forms of assessment that supplement self-reporting data by school teams and researchers to make it more accurate and reliable.

A final limitation that must be considered when examining these findings relates to the fact that this principal investigator was involved both in carrying out the Contextual Fit Intervention sessions with teachers, and collecting initial student data as well as collecting interobserver agreement data as a second observer. This may be problematic when considering

the validity of this study because we do not know whether the presence of the principal investigator in classrooms influenced teachers and students' behaviors. Therefore, it is necessary that other studies evaluate whether a Contextual Fit Intervention has the same effects when conducted by trained school personnel, and the data collection process is carried out without the presence of individuals that may influence participant responses.

Summary

The present study used a multiple baseline design across four students and their classroom teachers to examine the role of contextual fit on implementation fidelity of BSPs and student behavior. Results indicated that (a) when Baseline Condition plans were not implemented, problem behavior remained high, (b) contextual fit interventions needed one-45 minute meeting in which the researcher, behavioral specialist and the classroom teacher met to enhance the contextual fit of the plan. This in turn improved (a) the contextual fit of the BSP, b) its implementation fidelity, and (c) student behaviors. Furthermore, classroom teachers considered the CF Intervention practical and socially valid. Although these are preliminary results, these findings present promising evidence that the Contextual Fit Enhancement Protocol is an effective and efficient strategy which can be used by school staff for improving the degree of fit of BSP procedures. In addition, this study's results contribute to the implementation science field with new insights on the importance of contextual fit for successful implementation of evidence-based practices as well as how this construct may be assessed and adapted in applied settings. Results of the present study have implications for practice, training, and future research in this important and often neglected subject.

BSP IMPLEMENTATION FIDELITY CHECKLIST FOR TEACHER PARTICIPANT 1

Components of the BSP	Implemented? Yes (Y), No (N), or No opportunity (N/O)		
Prevention (Environmental Redesign)			
When independent assignment is given, if KR requests to complete his work at a separate desk, teacher grants KR's request within 1 min	**Y**	**N**	**N/O**
During 20 min observation period, teacher provides 5:1 positive (reinforcing) to negative (corrective) statements: Group Positive: Group Negative: Individual Positive: Individual Negative: 	**Y**	**N**	
When independent assignment is given, teacher precorrects by reminding KR behavioral expectations, rewards, and asking for a break if needed	**Y**	**N**	
Teaching (Teach New Skills)			
When working on an independent assignment, if KR exhibits frustrated, teacher prompts him to ask for a break	**Y**	**N**	**N/O**
When working on an independent work task, if KR requests a break, teacher grants a 5 min break within 1 min of KR request	**Y**	**N**	**N/O**
Consequences (Reward appropriate behavior, minimize pay-off for problem behavior)			
During 20 min observation period, teacher provides descriptive verbal praise and Color Spots for appropriate behavior (i. e., remaining on task, following directions, completing work, asking for break).	**Y**	**N**	**N/O**
During 20 min observation period, teacher prompts behavioral expectations at earliest signs of behaviors by using no more than 2 sentences	**Y**	**N**	**N/O**
When working on an independent assignment, if KR appropriately asks for a break, teacher grants a 5 min break within 1 min of request	**Y**	**N**	**N/O**

Observer Notes:

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*Note any additional information that might be helpful.

APPENDIX B

BSP IMPLEMENTATION FIDELITY CHECKLIST FOR TEACHER PARTICIPANT 2

Components of the BSP	Implemented? Yes (Y), No (N), or No opportunity (N/O)		
Prevention (Environmental Redesign)			
When independent assignment is given, teacher precorrects by reminding ME behavioral goals, rewards, and asking for help or a break if needed	Y	N	
During 20 min observation period, teacher provides 5;1 positive (reinforcing) to negative (corrective) statements: Group Positive: Group Negative: Individual Positive: Individual Negative:	Y	N	
Teaching (Teach New Skills)			
During independent work task, if ME request help, teacher provides support within 1 min of request	Y	N	N/O
When working on an independent work task, if ME requests a break, teacher grants a 5 min break within 1 min of ME request	Y	N	N/O
When working on an independent assignment, if ME exhibited frustrated or off-task behavior, teacher prompts him to ask for help or a break	Y	N	N/O
Consequences (Reward appropriate behavior, minimize pay-off for problem behavior)			
During 20 min observation period, teacher provides descriptive verbal praise for appropriate behavior (i.e., remaining on task, following directions, waiting for turn, ask for help).	Y	N	N/O
During 20 min observation period, teacher prompts behavioral expectations at earliest signs of behaviors by using no more than 2 sentences	Y	N	N/O
When working on an independent, if ME appropriately asks for a break, teacher grants a 5 min break within 1 min of request	Y	N	N/O
When working on an independent assignment, if ME appropriately asks for help, teacher provides assistance within 1 min of request	Y	N	N/O

Observer Notes:

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*Note any additional information that might be helpful.

BSP IMPLEMENTATION FIDELITY CHECKLIST FOR TEACHER PARTICIPANT 3

Components of the BSP	Implemented? Yes (Y), No (N), or No opportunity (N/O)		
Prevention (Environmental Redesign)			
When independent assignment is given, teacher precorrects by reminding GF behavioral expectations and rewards	Y	N	
During 20 min observation period, teacher provides 5:1 positive (reinforcing) to negative (corrective) statements Group Positive: Individual Positive: Group Negative: Individual Negative:	Y	N	
Teaching (Teach New Skills)			
When working on an independent assignment, if GF exhibits off-task behavior, teacher gives a verbal redirection re-stating academic and behavioral expectation	Y	N	N/O
Consequences (Reward appropriate behavior, minimize pay-off for problem behavior)			
During 20 min observation period, teacher prompts behavioral expectations at earliest signs of off task behaviors by using no more than 2 sentences and turning the card to yellow as a warning	Y	N	N/O
After teacher prompts behavioral expectations, if GF does not comply within 1 minute the teacher will : turn the card to Red, direct GF to go to the "cool down desk" in the classroom, and remind behavioral expectations and rewards	Y	N	N/O
If GF goes to the "cool down desk" within 1 minute, teacher will provide verbal praise and turn the card to yellow.	Y	N	N/O
After GF has spent at least 2 minutes at the cool down desk and is ready, teacher will ask her to go back to the class instruction and turn the card to green	Y	N	N/O
During 20 min observation period, if GF leaves class (or the area she is supposed to be in), teacher will turn the card to Red and GG will lose her next recess	Y	N	N/O

Observer Notes:

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*Note any additional information that might be helpful.

BSP IMPLEMENTATION FIDELITY CHECKLIST FOR TEACHER PARTICIPANT 4

Components of the BSP	Implemented? Yes (Y), No (N), or No opportunity (N/O)		
Prevention (Environmental Redesign)			
During 20 min observation period, teacher provides 5:1 positive (reinforcing) to negative (corrective) statements: Group Positive: Group Negative: Individual Positive: Individual Negative:	Y	N	
When independent assignment is given, teacher precorrects by reminding AP behavioral goals, rewards, and asking for help or a break if needed	Y	N	
Teaching (Teach New Skills)			
When working on an independent assignment, if AP exhibits frustrated or off-task behavior, teacher prompts her to ask for help or a break	Y	N	N/O
During independent work task, if AP requests help, teacher provides support within 1 min of request	Y	N	N/O
When working on an independent work task, if AP requests a break, teacher grants a 5 min break within 1 min of AP request	Y	N	N/O
Consequences (Reward appropriate behavior, minimize pay-off for problem behavior)			
When working on an independent assignment, if AP appropriately asks for help, teacher provides assistance within 1 min of request.	Y	N	N/O
When working on an independent assignment, if AP appropriately asks for a break, teacher grants a 5 min break within 1 min of request	Y	N	N/O
During 20 min observation period, teacher provides descriptive verbal praise and Color Spots and "blues" on her PASS card for appropriate behavior (i. e., remaining on task, following directions, waiting for turn, ask for help).	Y	N	N/O
During 20 min observation period, teacher prompts behavioral expectations at earliest signs of behaviors by using no more than 2 sentences	Y	N	N/O

Observer Notes:

_____

_____

_____

_____

*Note any additional information that might be helpful.

PARTIAL INTERVAL DATA SHEET FOR STUDENT PARTICIPANT 1

	Problem Behavior	Operational Definition
D	Disruptive Behavior	Disruptive behavior will be defined as verbal displays that hurt the continuity of the class or the ability of students to hear the teacher, students talking with other students and not listening to the teacher, or physical contact between the students or between the students and the teacher, both subtle and demonstrative (e. g., poking and punching classmates, talking out or talking to peers no connected to class work, making noises during instruction, tearing instructional materials or crumpling paper with hands, taping pencil or other objects on desk and stomping feet)
OS	Out of Seat	Student's buttocks are not in contact with the seat for a minimum of 3 consecutive seconds (at a time student is expected to be seated)
OT	Off-Task Behavior	During work time, student engages in any tasks other than the assigned task or ongoing activity (e.g., looking around the room, playing with items, talking, head on the desk) for more than 5 seconds.
PTR	Protest/Task Refusal	Student does not initiate teacher request/direction within 5 seconds saying "no", "I don't want to", "I won't do it" or "not now" to any academic or non-academic request.

	0-10s	11-20s	21-30s	31-40s	41-50s	51-60s
1	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
2	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
3	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
4	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
5	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
6	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
7	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
8	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
9	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
10	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
11	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
12	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
13	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
14	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
15	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
16	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
17	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
18	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
19	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
20	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS

PARTIAL INTERVAL DATA SHEET FOR STUDENT PARTICIPANT 2

	Problem Behavior	Operational Definition
OT	Off-Task Behavior	During work time, student engages in any tasks other than the assigned task or ongoing activity (e.g., looking around the room, playing with items, talking, head on the desk) for more than 5 seconds.
PTR	Protest/Task Refusal	Student does not initiate teacher request/direction within 5 seconds saying "no", "I don't want to", "I won't do it" or "not now" to any academic or non-academic request.
OS	Out of Seat	Student's buttocks are not in contact with the seat for a minimum of 3 consecutive seconds (at a time student is expected to be seated)
D	Disruptive Behavior	Disruptive behavior will be defined as verbal displays that hurt the continuity of the class or the ability of students to hear the teacher, students talking with other students and not listening to the teacher, or physical contact between the students or between the students and the teacher, both subtle and demonstrative (e. g., poking and punching classmates, talking out or talking to peers no connected to class work, making noises during instruction, tearing instructional materials or crumpling paper with hands, taping pencil or other objects on desk and stomping feet).

	0-10s	11-20s	21-30s	31-40s	41-50s	51-60s
1	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
2	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
3	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
4	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
5	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
6	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
7	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
8	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
9	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
10	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
11	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
12	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
13	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
14	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
15	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
16	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
17	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
18	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
19	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
20	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS

APPENDIX G

PARTIAL INTERVAL DATA SHEET FOR STUDENT PARTICIPANT 3

	Problem Behavior	Operational Definition
E	Elopement	Student leaves designated area without permission (e.g., classroom)
D	Disruptive Behavior	Disruptive behavior will be defined as verbal displays that hurt the continuity of the class or the ability of students to hear the teacher, students talking with other students and not listening to the teacher, or physical contact between the students or between the students and the teacher, both subtle and demonstrative (e. g., poking and punching classmates, talking out or talking to peers no connected to class work, making noises during instruction, tearing instructional materials or crumpling paper with hands, taping pencil or other objects on desk and stomping feet)
OS	Out of Seat	Student's buttocks are not in contact with the seat for a minimum of 3 consecutive seconds (at a time student is expected to be seated)
OT	Off-Task Behavior	During work time, student engages in any tasks other than the assigned task or ongoing activity (e.g., looking around the room, playing with items, talking, head on the desk) for more than 5 seconds.
PTR	Task Refusal	Student does not initiate teacher request/direction within 5 seconds saying "no", "I don't want to", "I won't do it" or "not now" to any academic or non-academic request.

	0-10s	11-20s	21-30s	31-40s	41-50s	51-60s
1	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
2	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
3	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
4	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
5	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
6	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
7	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
8	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
9	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
10	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
11	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
12	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
13	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
14	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
15	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
16	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
17	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
18	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
19	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E
20	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E	D OT PTR OS E

APPENDIX H

PARTIAL INTERVAL DATA SHEET FOR STUDENT PARTICIPANT 4

	Problem Behavior	Operational Definition
D	Disruptive Behavior	Disruptive behavior will be defined as verbal displays that hurt the continuity of the class or the ability of students to hear the teacher, students talking with other students and not listening to the teacher, or physical contact between the students or between the students and the teacher, both subtle and demonstrative (e. g., poking and punching classmates, talking out or talking to peers no connected to class work, making noises during instruction, tearing instructional materials or crumpling paper with hands, taping pencil or other objects on desk and stomping feet)
OS	Out of Seat	Student's buttocks are not in contact with the seat for a minimum of 3 consecutive seconds (at a time student is expected to be seated)
OT	Off-Task Behavior	During work time, student engages in any tasks other than the assigned task or ongoing activity (e.g., looking around the room, playing with items, talking, head on the desk) for more than 5 seconds.
PTR	Protest/Task Refusal	Student does not initiate teacher request/direction within 5 seconds saying "no", "I don't want to", "I won't do it" or "not now" to any academic or non-academic request.

	0-10s	11-20s	21-30s	31-40s	41-50s	51-60s
1	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
2	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
3	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
4	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
5	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
6	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
7	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
8	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
9	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
10	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
11	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
12	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
13	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
14	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
15	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
16	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
17	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
18	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
19	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS
20	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS	D OT PTR OS

SELF-ASSESSMENT OF CONTEXTUAL FIT IN SCHOOLS

(Horner, Salentine, & Albin, 2003)

The purpose of this interview is to assess the extent to which the elements of a behavior support plan fit the contextual features of your school environment. The interview asks you to rate (a) your knowledge of the elements of the plan, (b) your perception of the extent to which the elements of the behavior support plan are consistent with your personal values, and skills, and (c) the school's ability to support implementation of the plan. This information will be used to design practical procedures that will help school personnel support children with problem behaviors. The information you provide will be maintained and reported in a confidential manner consistent with the standards of the American Psychological Association. You will never be identified.

Please read the attached behavior support plan, and provide your perceptions of the specific elements in this plan. Thank you for your contribution and assistance.

Name of Interviewee: _____ Role : _____
Support plan reviewed: _____

Knowledge of elements in the Behavior Support Plan.

1. I am aware of the elements of this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

2. I know what I am expected to do to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Skills needed to implement the Behavior Support Plan

3. I have the skills needed to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

4. I have received any training that I need to be able to implement this behavior support plan.

No training needed _____

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Values are consistent with elements of the behavior support plan

5. I am comfortable implementing the elements of this behavior support plan

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

6. The elements of this behavior support plan are consistent with the way I believe students should be treated.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Resources available to implement the plan

7. My school provides the faculty/staff time needed to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

8. My school provides the funding, materials, and spaced needed to implement this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Administrative Support

9. My school provides the supervision support needed for effective implementation of this behavior support plan.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

10. My school administration is committed to investing in effective design and implementation of behavior support plans.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Effectiveness of Behavior Support Plan

11. I believe the behavior support plan will be (or is being) effective in achieving targeted outcomes.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

12. I believe the behavior support plan will help prevent future occurrence of problem behaviors for this child.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

Behavior Support Plan is in the best interest of the student

13. I believe this behavior support plan is in the best interest of the student.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

14. This behavior support plan is likely to assist the child to be more successful in school.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

The Behavior Support Plan is efficient to implement

15. Implementing this behavior support plan will not be stressful.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

16. The amount of time, money and energy needed to implement this behavior support plan is reasonable.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

APPENDIX J

BSP CRITICAL FEATURES CHECKLIST

(Strickland-Cohen & Horner, 2012)

Critical Elements of the BSP	Yes	No
1. Operational (i. e., observable, measurable) description of the problem behavior (s) included.		
2. Routine (s) in which problem behavior is most likely to occur identified?		
3. a) Antecedents (including setting events, if applicable) are identified?		
b) Identified antecedents are consistent with the FBA summary statement?		
4. a) The function of the problem behavior is identified.		
b) The identified function is consistent with FBA summary statement?		
5. a) An alternative behavior is identified.		
b) Alternative behavior is consistent with the FBA summary statement?		
6. a) The plan contains strategies for preventing problem behavior from occurring?		
b) Prevention strategies include interventions consistent with the FBA summary statement?		
7. The plan contains teaching strategies focused on: a) Teaching the alternative behavior?		
b) Teaching desired behavior/skills?		
8. a) The plan contains strategies for reinforcing alternative/desired behaviors?		
b) Reinforcement strategies include interventions consistent with summary statement, and no contraindicated* interventions?		
9. a) The plan contains strategies for minimizing rewards for problem		

behaviors?		
b) Strategies for minimizing rewards are consistent with the FBA summary statement?		
10. Includes an implementation plan that specifies the person(s) responsible for implementing the intervention strategies?		
11. Includes an evaluation plan that documents:		
a) A strategy/strategies for assessing the extent to which the plan is being implemented?		
b) A strategy/strategies for assessing the impact of the plan on student outcomes?		
c) A date for the next meeting to review the plan?		
Technical adequacy score for this behavior support plan:		

APPENDIX K

TEACHER QUESTIONNAIRE ON SOCIAL VALIDITY

Thank you for participating in this study. The purpose of this questionnaire is to better understand your perceptions about the role that "contextual fit" plays in behavior support. Please indicate the extent to which you agree or disagree with each statement by circling the number that most closely reflects your opinion. Finally, please answer the open-ended questions at the end.

Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I believe the process of addressing contextual fit improved implementation of the Behavior Support Plan (BSP).	1	2	3	4	5
I believe that the core elements of the BSP did **not** change, but that the way we implemented those elements did change with the intervention.	1	2	3	4	5
The contextual fit process made it more clear how to use the BSP in my classroom/setting	1	2	3	4	5
The contextual fit process made the elements of the BSP more consistent with my values about teaching and behavior support	1	2	3	4	5
The contextual fit process improved the level of administrative support I received to implement this BSP	1	2	3	4	5
The contextual fit process improved the impact of the BSP on my student's behavior (decrease in problem behavior, increase in appropriate behavior).	1	2	3	4	5
The contextual fit process improved the degree of effort and stress needed to implement the BSP	1	2	3	4	5
The contextual fit process should be used in all future behavior support planning in the district.	1	2	3	4	5

1. What was the main component of this contextual fit intervention that helped you improve BSP implementation and decrease student problem behavior?

2. What additional suggestions do you have for how to improve the contextual fit associated with behavior support in your district?

3. Would you recommend this process for others?

REFERENCES CITED

Albin, R. W., Lucyshyn, J. M., Horner, R. H., & Flannery, K. B. (1996). Contextual fit for

　　behavior support plans. In L. K. Koegel, R. L. Koegel, G. Dunlap (Eds.), *Positive*

　　*behavioral support: Including people with difficult behavior in the communit*y (pp. 81-

　　98). Baltimore: Brookes.

Algozzine, B., Barrett, S., Eber, L., George, H., Horner, R., Lewis, T., Putnam, B., Swain-

　　Bradway, J., McIntosh, K., & Sugai, G (2014). School-wide PBIS Tiered Fidelity

　　Inventory. OSEP Technical Assistance Center on Positive Behavioral Interventions and

　　Supports. www.pbis.org.

Algozzine, B., Putnam, R., & Horner, R. (2010). What we know about the relationship between

　　achievement and behavior. In B. Algozzine, A. P. Daunic, & S. W. Smith (Eds.),

　　Preventing problem behaviors (2nd ed., pp. 223-226) *Thousand Oaks, CA: Corwin.*

Al Otaiba, S., & Fuchs, D. (2006). Who are the young children for whom best practices in

　　reading are ineffective? An experimental and longitudinal study. *Journal of Learning*

　　Disabilities, 39, 414-431.

Bailey, D.B., Simeonsson, R.J., Winton, P.J., Huntingdon, G.S., Comfort, M., Isbell, P.,

　　O'Donell, K.J., & Helm, J.M. (1990). Family-focused intervention: A functional model

　　for planning, implementing, and evaluating individualized family services in early

　　intervention. *Journal of the Division for Early Childhood, 10*, 156-171.

Benazzi, L., Horner, R. H., & Good, R. H. (2006). Effects of behavior support team composition

　　on the technical adequacy and contextual fit of behavior support plans. *The Journal of*

　　Special Education, 40(3), 160-170.

Benner, G. J., Allor, J. H., & Mooney, P. (2008). An investigation of the academic processing

    speed of students with emotional and behavioral disorders served in public school

    settings. *Education and Treatment of Children, 31*, 307-332.

Bradshaw, C., & Pas, E., T. (2011). A statewide scale up of positive behavioral interventions and

    supports: A description of the development of systems of support and analysis of

    adoption and implementation. *School Psychology Review, 40*(4), 530-548.

Brown, F., & De Pry, R. L. (2015). Individual positive behavior supports: A standards-based

    guide to practices in school and community settings. Baltimore, MD: Paul H. Brooks.

Carr, E. G., Horner, R. H., Turnbull,A. P., Marquis, J. G., McLaughlin, D. M., McAtee, M. L., et

    al. (1999). *Positive behavior support for people with developmental disabilities.*

    Washington, DC: American Association on Mental Retardation.

Carr, E. G., Langdon, N. A., & Yarbrough, S. C. (1999). Hypothesis-based intervention for

    severe problem behavior. In A. C. Repp & R. H. Horner (Eds.), *Functional analysis of*

    problem behavior: From effective assessment to effective support (pp. 9–31). Belmont,

    CA: Wadsworth.

Chaparro, E., Smolkowski, K., Baker, S., Hanson, N., & Ryan-Jackson, K. (2012). A model for

    system-wide collaboration to support integrated social behavior and literacy evidence-

    based practices. *Psychology in the Schools, 49*(5), 465-482.

Coffey, J. & Horner, R. H. (2012). The sustainability of schoolwide positive behavior

    interventions and supports. *Council for Exceptional Children, 78*(4), 407-422.

Crone, D. A., Hawken, L. S., & Horner, R. H. (2015). *Building positive behavior support*

    systems in schools. New York, NY: Guildford.

Crone, D. A., & Horner, R. H. (2003). *Building positive behavior support systems in schools: Functional behavioral assessment.* New York: Guilford Press.

Didden, R., Duker, P. C., & Korzilius,H. (1997). Meta-analytic study on treatment effectiveness for problem behaviors with individuals who have mental retardation. *American Journal of Mental Retardation, 101,* 387–399.

Dunlap, G., & Carr, E. (2007). Positive behavior support and developmental disabilities. In S. Odom, R. Horner, M. Snell and J. Blacher (Eds.), *Handbook of Developmental Disabilities* (pp. 469-482). New York, NY: Guilford.

Dunlap, G. & Fox, L. (2012). Function-based interventions for children with challenging behavior. *Journal of Early Intervention, 33*(4), 333-343.

DuPaul, G. J., Gormley, M. J., & Laracy, S. D. (2013). Comorbidity of LD and ADHD: Implications of DSM-5 for assessment and treatment. *Journal of Learning Disabilities, 46*(1), 43-51.

Filter, K. J., & Horner, R. H. (2009). Function-based academic interventions for problem behavior. *Education and Treatment of Children, 32*, 1–19.

Fixsen, D. L., Blasé, K. A., Duda, M. A., Naoom, S. F., Van Dyke, M., Weisz, J. R., et al. (2010). Implementation of evidence-based treatments for children and adolescents: Research findings and their implications for the future. In J. Weisz & A. Kazdin (Eds.), *Implementation and dissemination: Extending treatments to new populations and new settings* (2nd ed.) (pp. 435-450). New York, NY: Guidford.

Fixsen, D. L., Blase, K. A., Metz, A., & Van Dyke, M. (2013a). Statewide implementation of evidence-based programs. *Exceptional Children, 79*(2), 213-230.

Fixsen, D. L., Naoom, S. F., Blasé, K. A., Friedman, R. M., & Wallace, F. (2005).

    Implementation research: A synthesis of the literature. Tampa, FL: University of South

    Florida, Louis de la Parte Florida Mental Health Institute, National Implementation

    Research Network. (FMHI Publication No. 231).

Freeman, J., Simonsen, B., McCoach, D. B., Sugai, G., Lombardi, A., & Horner, R. (2016).

    Relationship between school-wide positive behavior interventions and supports and

    academic, attendance, and behavior outcomes in high schools. *Journal of Positive*

    Behavior Interventions, 18(1), 41-51.

Gresham, F. M., MacMillan, D., Beebe-Frankenberger, M. E. & Bocian, K. M. (2000).

    Treatment integrity in learning disabilities intervention research: Do we really know how

    treatments are implemented? *Learning Disabilities Research and Practice, 15*, 198-205.

Haydon, T. (2012). Using functional behavior assessment to match task difficulty for a 5 th grade

    student: A case study. *Education and Treatment of Children*, *35*(3), 459-476.

Horner, R.H., Albin, R.W., Sprague, J.R. & Todd, A. (1999). Positive behavior support. In M.E.

    Snell & F. Brown (Eds.), *Instruction of Students with Severe Disabilities*. (pp. 207-243).

    Upper Saddle River, NJ: Merrill Prentice Hall.

Horner, R. H., Albin, R. W., Todd, A. W., Newton J. S., & Sprague, J.R., (2011). Designing and

    implementing individualized positive behavior support. In M. Snell and F. Brown (Eds.)

    Instruction of students with severe disabilities (pp. 257-303). Boston: Pearson.

Horner, R. H., Blitz, C., & Ross, S. W. (2014). *The importance of contextual fit when*

    implementing evidence-based interventions (Assistant Secretary for Planning and

    Evaluation Issue brief 1-16).

Horner, R. H., & Carr, E. G. (1997). Behavioral support for students with severe disabilities: Functional assessment and comprehensive intervention. *The Journal of Special Education, 31*, 84-104.

Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children*, *71*(2), 165-179.

Horner, R. H., Salentine, S., & Albin, R. W. (2003). *Self-Assessment of contextual fit in schools.* Eugene, Oregon: University of Oregon.

Horner, R., Sugai, G., & Anderson, C. (2010). Examining the evidence base for school-wide positive behavior support. *Focus on Exceptional Children, 42*(8), 1-14.

Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A.W.,& Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions, 11*, 133 – 144.

Horner, R. H., Sugai, G., Todd, A. W., & Lewis-Palmer, T. (2005). School-wide positive behavior support. In L. Bambara & L. Kern (Eds.), *Individualized supports for students with problem behaviors: Designing positive behavior plans* (pp. 359–390). New York: Guilford Press.

Individuals with Disabilities Act Amendments of 1997, Pub. L. No. 17-105, § 101, 111 Stat. 37 (1997).

Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, § 101, 118 Stat. 2647 (2004).

Ingram, K., Lewis-Palmer, T., & Sugai, G. (2005). Function-based intervention planning: Comparing the effectiveness of FBA function-based and non-function-based intervention plans. *Journal of Positive Behavior Interventions*, *7*(4), 224-236.

Kaderavek, J. N., & Justice, L. M. (2010). Fidelity: An essential component of evidence-based practice in speech-language pathology. American Journal of SpeechLanguage Pathology, 19, 369–379.

Kelm, J. L., McIntosh, K., & Cooley, S. (2014). Effects of implementing school-wide positive behavioural interventions and supports on problem behaviour and academic achievement in a Canadian elementary school. *Canadian Journal of School Psychology, 29*(3) 195-212.

Kratochwill, T. R., Hitchcock, J., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M. & Shadish, W. R. (2010). Single-case designs technical documentation. Retrieved from What Works Clearinghouse website: http://ies.ed.gov/ncee/wwc/pdf/wwc_scd.pdf.

Loman, S. L., & Horner, R. H. (2014). Examining the efficacy of a basic functional behavioral assessment training package for school personnel. *Journal of Positive Behavior Interventions*, *16*(1), 18–30.

Lucyshyn, J.M., Olson, D., & Horner, R.H. (1995). Building an ecology of support: A case study of one young woman with severe problem behaviors living in the community. *Journal of the Association for Persons with Severe Handicaps, 20*(1), 16-30.

Majeika, C. E., Walder, J. P., Hubbard, J. P., Steeb, K. M., Ferris, G. J., Oakes, W. P., & Lane, K. L. (2011). Improving on-task behavior using a functional assessment-based intervention in an inclusive high school setting. *Beyond Behavior*, *20*(3), 55-66.

McIntosh, K. & Av-Gay, H. (2007). Implications of current research on the use of functional

    behavior assessment and behavior support planning in school systems. *International*

    Journal of Behavioral Consultation and Therapy, 3(1), 38-51.

McIntosh, K., Chard, D. J., Boland, J. B., & Horner, R. H. (2006). Demonstration of combined

    efforts in school-wide academic and behavioral systems and incidence of reading and

    behavioral challenges in early elementary grades. *Journal of Positive Behavior*

    Interventions, 8, 146-154.

McIntosh, K., Mercer, S. H., Hume, A. E., Frank, J. L., Turri, M. G., & Mathews, S. (2013).

    Factors related to sustained implementation of school-wide positive behavior support.

    Exceptional Children, *79*(3), 293-311.

Miles, S. B., & Stipek, D. (2006). Contemporaneous and longitudinal associations between

    social behavior and literacy achievement in a sample of low-income elementary school

    children. *Child Development, 77*, 103-117.

Martens, B. K., & Lambert, T. L. (2014). Conducting functional behavioral assessments for

    students with emotional/behavioral disorders. In H. M. Walker & F. M. Gresham (Eds.),

    Handbook of evidence-based practices for emotional and behavioral disorders:

    Application in schools (pp. 243-257). New York, NY: The Guildford Press.

Moreno, G., Wong-Lo, M., & Bullock, L. M. (2014). Assisting students from diverse

    backgrounds with challenging behaviors: Incorporating a culturally attuned functional

    behavioral Assessment in prereferral services. *Preventing School Failure: Alternative*

    Education for Children and Youth, *58*(1), 58-68.

Odom, S. L., Fleming, K., Diamond, K., Lieber, J., Hanson, M., Butera, G., . . . Marquis, J.
(2010). Examining different forms of implementation and in early childhood curriculum
research. *Early Childhood Research Quarterly, 25*, 314–328.

O'Neill, R. E., Albin, R. W., Storey, K., Horner, R. H.,& Sprague, J. R. (2015). *Functional
assessment and program development for problem behavior: A practical handbook
(Third Ed.).*Independence, KY: Cengage Learning.

O'Neill, S., & Stephenson, J. (2010). The use of functional behavioural assessment for students
with challenging behaviours: Current patterns and experience of Australian practitioners.
Australian Journal of Educational & Developmental Psychology, *10*, 65-82.

Parker, R. I., Vannest, K. J., Davis, J. L., & Sauber, S.B. (2011). Combining non-overlap and
trend for single case research: Tau-U. *Behavior Therapy, 42*, 284-299.

Pinkelman, S., & Horner, (2015). Effects of self-delivered performance feedback and impact
assessment via the individual student information system (ISIS-SWIS) on behavior
support plan treatment fidelity and student outcomes. *Manuscript submitted for
publication.*

Preciado, J. A., Horner, R. H., & Baker, S. K. (2009). Using a function-based approach to
decrease problem behaviors and increase academic engagement for Latino English
language learners. *The Journal of Special Education, 42,* 227–240.

Sandler, L., Albin, R. W., Horner, R. H., & Yovanoff, P. (2003). Contextual fit and the viability
of behavior support plans. Unpublished manuscript, Educational and Community
Supports, University of Oregon.

Sanford, A., & Horner, R. (2012). Effects of matching instruction difficulty to reading level for

    students with escape-maintained problem behavior. *Journal of Positive Behavior*

    Interventions, 15(2), 79-89.

Scott, T. M., Alter, P. J., & McQuillan, K. (2010). Functional behavior assessment in classroom

    settings: Scaling down to scale up. *Intervention in School and Clinic, 46*(2), 87-94.

Shepherd, T. L., & Linn, D. (2015). *Behavior and classroom management in the multicultural*

    classroom: Proactive, active, and reactive strategies. California, CA: SAGE

    Publications.

Spencer, T. D., Detrich, R., & Slocum, T. A. (2012). Evidence-based practice: A framework for

    making effective decisions. *Education and Treatment of Children, 35*, 127-152.

Stormont, M., & Reinke, W. M. (2012). Using coaching to improve classroom implementation

    fidelity within school-wide positive behavior supports systems. *Beyond Behavior, 21,* 11-

    19.

Strickland-Cohen, M. K., & Horner, R. H. (2015). Typical school personnel developing and

    implementing basic behavior support plans. *Journal of Positive Behavior Interventions*,

    17(2), 83-94.

Sugai, G., & Horner, R. (2006). A promising approach for expanding and sustaining school-wide

    positive behavior support. *School Psychology Review, 35*(2), 245-259.

Sugai, G., & Horner, R. (2009). Responsiveness-to-intervention and school-wide positive

    behavior supports: Integration of multi-tiered system approaches. *Exceptionality, 17*, 223-

    237.

Sugai, G., Horner, R. H., Dunlap, G., Hineman, M., Lewis, T., Nelson, C. M…et al. (2000).

Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive Behavior Interventions,* 2(3), 131-143.

Sugai, G., & Horner, R. (2009). Responsiveness-to-intervention and school-wide positive behavior supports: Integration of multi-tiered system approaches. *Exceptionality, 17*, 223-237.

Sugai, G., Lewis-Palmer, T. L., Todd, A. W., & Horner, R. H. (2001). School-wide evaluation tool (SET). *Eugene, OR: Center for Positive Behavioral Supports, University of Oregon*.

Sutherland, K. S., Lewis-Palmer, T., Stichter, J., & Morgan, P. L. (2008). Examining the influence of teacher behavior and classroom context on the behavioral and academic outcomes for students with emotional and behavioral disorders. *The Journal of Special Education, 41*, 223-233.

Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J. R., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders, 4*, 194–209.

Walker, H. M., Kavanagh, K., Stiller, B., Golly, A., Severson, H. H., & Feil, E. G. (1998). First step to success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders, 6,* 66-80.

Whitworth, B. & Chiu, J. L. (2015). Professional development and teacher change: The missing leadership link. *Journal of Science Teacher Education, 26*, 121-137.

Wood, B. K., Peia-Oakes, W., Fettig, & Lane, K. L. (2015). A review of the evidence base of functional assessment-based interventions for young students using one systematic approach. *Behavioral Disorders, 40*(4), 230-250.