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Increasing Implementation Fidelity Of Behavior Intervention Plans In Public Schools Following Delivery Of Remote Behavior Skills Training For Staff

Shayna Kia Shriver

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INCREASING IMPLEMENTATION FIDELITY OF BEHAVIOR INTERVENTION PLANS
IN PUBLIC SCHOOLS FOLLOWING DELIVERY OF REMOTE BEHAVIOR SKILLS
TRAINING FOR STAFF

by

Shayna Shriver
Bachelor of Science, Valley City State University, 2017
Master of Science, University of North Dakota, 2019

A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

Doctor of Education in Educational Practice and Leadership

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Name: Shayna Shriver

Degree: Doctor of Education

       This document, submitted in partial fulfillment of the requirements for the degree from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.

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Chris Nelson
Dean of the School of Graduate Studies

7/26/2022
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Department   Educational Practice and Leadership

Degree   Doctor of Education

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                                     Shayna Shriver
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Abstract

The purpose of this study was to examine the effects of a remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). This study addressed the following research question: What are the effects of a remote behavior skills training program on the teacher percentage of correctly implemented steps of a behavior intervention program. The study was conducted with elementary school teachers who work with students who continue to exhibit problematic behaviors. Teachers were trained to effectively implement students' current BIPs, which consisted of teachers reporting on the effectiveness of the intervention. The primary dependent variable for this study was the percentage of intervals which included teacher intervention implementation with fidelity during a 30-minute block of the day during which problem behavior is most likely to occur. Teacher behavior was measured, reported, and graphed as a means of effective BST training for teachers. Current behavior plans designed by the interdisciplinary team in the public school where intervention strategies have been implemented were used, as indicated within the behavior plan. The study occurred across two separate school districts with similar providers who make up their interdisciplinary teams. The results of the study show that collaboration with a BCBA using remote BST training can effectively increase the fidelity of implementing the intervention and potentially decrease problem behaviors.

Keywords: Behavior Intervention Plan (BIP), Behavior Skills Training (BST), Remote training

Introduction to the Artifacts

This dissertation is structured around three artifacts. Artifact 1 discusses the purpose of the study as the researcher examines the effects of remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). Artifact 2 presents the research approach as a quantitative single case study and provides an overview of the methods used for the research design as well as the study results. Artifact 3 is a scholarly article that has been formatted for publication, following the BACB guidelines and the guidelines for publication for a special education scholarly journal. The document represents the researcher's proposal of a solution to the problem of implementing behavior intervention plans with fidelity. This artifact appears in Appendix C. Appendix B contains an excerpt of the Social Validity Survey. The definitions of key terms used in the study are presented in Appendix A.

Artifact 1: The Problem

The purpose of this section is to present the purpose and importance of the effects of remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST).

Overview of the Problem

The purpose of this study was to examine the effects of a remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). Many schools report an increase in problematic behaviors within the classroom setting (Baranauskas, 2021, Weissberg, 2019, Weisburst, 2019) Researchers have indicated that between three and four students engage in problematic behaviors in any classroom setting (Ervin et al., 2018). For students who exhibit these types of behaviors, the Individuals with Disabilities Education Act (IDEA, 2018) requires school-based interdisciplinary teams to examine the necessity of developing an individualized education program (IEP) as well as behavioral intervention plans (BIPs) for those students whose behavior impedes their performance or the performance of others (Etscheidt, 2006).

Interdisciplinary teams often lack knowledge regarding the use of positive behavioral support systems to support behavioral improvement (Nancarrow et al., 2013). The didactic nature of traditional staff training/professional development further compromises fidelity in the implementation of intervention plans (Parsons et al., 2012). Further training may be needed to ensure that all BIPS meet quality indicators as described by Pinkelman and Horner (2016) in a further section within this document. A quality behavior intervention plan must be based on a corresponding functional behavior assessment (FBA) that contains a clear, observable, and measurable definition of the problem behavior, followed by a clearly described intervention so

that the teacher can implement the plan as intended (Hinant, 2018). Although this process is considered evidence-based, many teachers find it difficult to implement the BIP due to a lack of training (Webster-Stratton & Reid,2018, Webster-Stratton et al., 2008).

The lack of effective training in BIP implementation may affect the ability of school personnel to effectively address problematic behaviors, leaving teachers and administrators frustrated and reaching for additional support. Further, when school personnel are not trained, families may blame school personnel for being unable to effectively teach their children (Robertson et al., 2020, Eber et al., 2010). This may lead to a further disconnect within the school-based team.

Administrators and teachers across the United Stated feel the strain of accessing adequate help and training to decrease problem behaviors (Billingsley & Bettini, 2019). The current protocols have a temporary effect on fixing problematic behaviors, which leaves administration and teachers concerned for the safety and learning of students who exhibit the behaviors as well as those observing them. Often, parents exhaust all of the resources they are aware while attempting to maintain a healthy environment at home with their child. Exhausted, parents then look to the school-based team to provide further connections to supports and interventions in and outside of the school setting. Further connections are often addressed using itinerant staff or outside support for extended help within the school setting. Itinerant staff and external agencies may provide support within the school setting to address problematic behaviors. This support may not be a permanent fix, in many cases, or may only last for a brief period. These services may be provided by social workers, school psychologists, speech-language pathologists, physical or occupational therapists, and occasionally behavior analysts.

Review of Relevant Research and Practitioner-Based Literature

This review and discussion of relevant literature begins with a focus on decreasing problem behaviors of students within the public elementary school setting. Schools utilize multiple components for their behavior designs, which are usually constructed by an interdisciplinary team (Sugai & Horner, 2009). School districts rely on personnel in the public-school setting who have a background in effectively designing, training, and implementing the interventions used to reduce problematic behaviors. While the team creates the plan and has the educational background to implement the program, the implementation is often left to the teacher, who has little, if any, training in implementing the interventions with fidelity (Flower et al., 2016).

Ideally, the school-based team collaborates to focus on identification of intervention strategies in designing the behavior plan. Collaboration should follow a relevant design plan for identifying relevant intervention strategies, as targeting skills across the multi-faceted designs can be complex, often requiring more comprehensive services and more frequent, intensive collaboration and communication between team members sharing mutual understanding. Speech-language pathologists and behavior analysts often take a leading role in the collaborative efforts of the school-based team with students who exhibit behavior concerns (Donaldson & Stahmer, 2014). The importance and need to find common ground across all team members cannot be overstated. Teachers rely on the many minds and skillsets of the school-based team members to work together to help decrease problem behaviors (Sugai & Horner, 2002).

Behavior issues can interfere with teaching and learning throughout the school day. This is a heightened concern with recent reports that nearly all teachers (99%) have students in their classrooms who require assistance/intervention for social, emotional, or behavioral challenges

(Scholastic, 2022). Despite the increased need for managing problematic behaviors, teachers across the United States are not adequately trained, nor are they prepared to manage heightened behaviors in classrooms (Samudre et al., 2021, Way, 2011). The number of students with increasingly severe problematic behaviors continues to rise, illuminating the need for multitiered, specialized intervention plans to bridge the gap between behavior and learning (Kern et al., 2020, Benner et al., 2013). At the same time, students who exhibit problem behaviors can spend more of their school day in mainstream/general education classes with peers (Sutherland et al., 2020). Because of this, general education teachers are being asked to implement behavior support plans without training and proper implementation. In these cases, it may be advisable to consider adding the training, consultation, and collaboration of a board-certified behavior analyst (BCBA) to support general education teachers due to the BCBA's intense training in behavior.

Due to the notion that supporting problem behaviors is a multitiered approach and that the number of students with problematic behaviors as well as the severity of the exhibited behaviors is increasing, schools increasingly recognize the need for specialized interventions that allow behavioral students to learn in the classroom (Floress et al., 2021, Sugai & Horner, 2019 Gable et al., 2010). With a focus on inclusion, more general education teachers are being asked to perform behavioral assessments that lead to interventions, such as an FBA; however, the lack of training or proper implementation has become more prominent (McCahill et al., 2014).

Lack of training leaves teachers reaching for tools and strategies that may not have been proven through evidence-based research to work. As behaviors worsen, classroom teachers and staff look for increased support from other team members from the school-based team, where the first hurdle is to compose the behavior plan with its many facets (Wehby & Kern, 2014). The teacher may often try to implement interventions or a classroom behavior plan on their own

using interventions such as differential reinforcements of alternative behaviors. Differential reinforcement of alternative behaviors (DRA) occurs when support is given the individual presents the alternate wanted behavior and is used to decrease or change the unwanted behavior (Cooper et al., 2020). When teachers increase their use of reinforcements correctly, they see a reduction in problem behaviors (Auld et al., 2010). When interventions are implemented incorrectly or problem behaviors are left untreated, the situation worsens, and an increase in problem behaviors is reported (Siceloff et al., 2017; Trussell, 2008). This often prompts school administration to enforce next-step discipline policies, such as suspension, expulsion, and calling the police (Black, 2018; Curran et al., 2019).

Next step discipline policies can be different for each student across disabilities and behaviors. Unfortunately, for example, about 15% of students with ASD have frequently experienced school disciplinary action, 7.9% encounter some type of police contact, and 7.8% end up being hospitalized (Turcotte et al., 2017). Further, the experience of any one of these three increases the risk of experiencing one of the others later (Turcotte et al., 2017). Training all school staff has been suggested to be an efficient way of decreasing student referrals for misbehavior which, in turn, reduces behavior-based referrals for special education evaluation (Polirstok & Gottlieb, 2006). One way to train staff is with the use of behavior skills training (BST). Behavior skills training is a way of teaching a task while using at least four steps (a) instruction, (b) modeling, (c) rehearsal, and (d) feedback (Cooper et al., 2020).

The Individuals with Disabilities Education Act of 2004 (IDEA,2004) is the law governing the implementation of special education services in the United States. Under provisions in IDEA, public schools are allowed to use up to 15% of money intended for special education services to support students who are struggling but not receiving special education

services (Fuchs & Fuchs, 2006). In response, schools across the nation have initiated the implementation of a response to intervention (RTI) system or multi-tiered systems of support (MTSS) to support students not served under an IEP (Grosche & Volpe, 2013). Within an MTSS or RTI system, general education teachers tend to struggle the most with problematic behaviors and will turn to those on the school-based team for direction (Briesch et al., 2019, Briesch et al., 2017). Response to Intervention (RTI) is an evidence-based intervention, a team provides data-based decision making through frequent assessments that guide the high-quality instructions to identify and provide the academic needs of students with behavioral support needs (Brown-Chidsey,2010). The use of MTSS is similar to RTI but expands to address the social-emotional or behavioral concerns and needs of a struggling student (Loftus-Rattan et al., 2021) This may then lead to the suggestion and development of a behavior intervention plan (BIP). Before a BIP can be written and implemented, however, a functional behavior assessment (FBA) must be completed. An FBA identifies the function of the behavior and the setting events for the problem behaviors (Barrington, 2019). Only with an accurate FBA can an effective BIP be developed.

A BIP is a document that presents evidence-based interventions designed to either increase positive or decrease problem behaviors when implemented with fidelity (Walker & Barry, 2017). It is best practice to couple the BIP with an FBA. An FBA is an assessment that identifies what drives and maintains the behavior, resulting in recommendations for facilitating the development and effectiveness of the resulting BIPs.

An FBA is an assessment that highlights the functional relationship between the behavior, the environment, and the consequence— the driving force— for the exhibited behavior (Ormsbee & Cooper, 2004). Within the IDEA, the federal government mandated the use of an FBA assessment to inform positive behavioral support to decrease problem behaviors within the

public-school setting. The use of an FBA has also been shown to be a crucial link to developing the behavior intervention plan and proactive approach in program planning (Barnhill, 2005). BCBAs have unique credentials and specialized knowledge and behavior skills, making them integral educational team members in facilitating the success of all students (Shriver, 2019). Highly trained, BCBAs implement ABA, a science that uses evidence-based procedures to address problem behaviors across the educational framework. They can play an essential role in supporting classroom teachers and school teams implementing the BIP.

Common Approaches to Addressing the Problem

When addressing problem behaviors, teachers commonly attempt simple classroom reinforcements as a first effort (Cooper et al., 2020). Classroom reinforcements are the first step within the public-school setting and are used as part of the first of the three tiers of support in an RTI/MTSS system (Center for Positive Behavior Intervention & Support [PBIS], 2022). The RTI/MTSS support system contains three tiers, which are layers systems of support. Everyone receives tier 1 in an MTSS system. In tier one, the student is academically assessed three times a year to rule out academic learning difficulties and/or provide support for success. In tier two, the student is receiving or needs extra academic or behavioral supports, such as interventions, and is still receiving assessments but at an increase of twice a month. Students receiving tier 2 supports may get additional support, most commonly in groups and if may be somewhat individualized. In tier three, the student is receiving very intense and individualized support, interventions, and weekly assessments. When a student is placed in the tier three support system, they may be considered for special education evaluation (Skaar et al., 2022). Within each tiered layer of support, the student may receive support in multiple ways. For example, in tier one, the teacher may use a token economy system in which they provide a sticker or token to the student each

time the student performs in an appropriate manner requested by the teacher. Once the desired number of tokens or stickers is reached, they can be traded for a more reinforcing item for the student.

If this first step is ineffective, the responses frequently focus on following school discipline policies. School discipline includes a broad range of interventions used by the administration to decrease problem behaviors and promote a safe school environment (Kincaid, 2017, Gottfredson & Gottfredson, 2001). Many of these interventions include loss of recess participation or other exclusionary measures, in-school suspension (ISS), and out-of-school suspension (OSS). If these approaches do not lead to an effective decrease in the problem behavior, the school staff and administration may further escalate the concerns to the attention of the school RTI/MTSS team.

While there are variations in the process across schools and states, there are usually incremental processes within a school's RTI or MTSS system. It is understood that RTI/MTSS makes up just one of the steps to decrease problematic behaviors within the public-school setting. Many schools have RTI/MTSS teams that identify and implement academic and behavioral supports. This process includes assessments from which the team may feel necessary to rule out disabilities and address barriers to inclusion (Grosche & Volpe, 2013). In cases where concerns remain after this process, the team may refer to additional school-based professionals and community-based professionals and resources for help. This may lead to further testing and assessment through special education evaluation and/or licensed medical providers including doctors and licensed mental health providers. Additional assessments and evaluations from school personnel are frequently conducted by a school psychologist, educational diagnostician, or behavioral specialist. Evaluations may be conducted by school district employees or

community-based professionals with whom the school contracts services. These individuals can evaluate the need for further testing, including determining the need for an FBA and BIP. In cases where the student has an identifiable disability under the IDEA that negatively affects their learning or the learning of others around them, the student may be placed on an IEP to provide for both academic and behavioral needs within the public-school setting.

An IEP is a document prepared by the interdisciplinary team that outlines a child's individual needs for growth in the learning environment. An IEP also provides detailed accommodations and modifications to generalized settings to reach the designated goals (Ezell, 2017). The IEP may also include paraprofessional support, BIPs, alternative assignments, or alternative settings. These are chosen by the team and are highly individualized.

Sometimes, a student with an identified disability only requires accommodations to succeed in school. In those cases, the school may determine that an IEP is not needed and that a 504 plan is sufficient (Stanberry, 2017). A 504 plan is designed around Section 504 of the Rehabilitation Act of 1973 (Rehabilitation Act, 1973). A 504 plan is a document that outlines a child's needs and lists individual accommodations or other services that need to take place in designated settings to reduce barriers to learning (Durheim, 2015). A 504 plan is provided to a student who exhibits specific needs that must be met to reduce the obstacles to their education but does not have an identified disability that interferes with the educational progress, according to provisions under the IDEA. A student on a 504 plan may have a diagnosed disability that effects their behavior, such as attention deficit hyperactive disorder (ADHD), but this disability may be addressed through accommodations. At times, this accommodation may include a behavior intervention plan (BIP) to reduce the likelihood of a behavioral outburst.

As a last resort, parents or other team members may determine a reduction in the child's school day or a setting change to decrease problem behaviors within the public-school setting. These accommodations may result in decreased educational outcomes, and therefore, the student may be moved to another school building that can better provide for them. For example, students with autism spectrum disorder (ASD) may sometimes benefit from a location with a sensory room designed to promote self-regulation.

Linking Possible Solutions (and Barriers) to Theoretical Foundations

The theoretical foundations for decreasing problem behavior lie within the protocol of the setting. For BCBAs, the foundation in reducing problem behavior within any environment includes evidence-based and scientifically supported interventions. Many times, however, procedures described in the BIP are not implemented with fidelity (Robertson et al., 2020; Hirsch et al., 2017). One way to increase the fidelity of implementation while adding more team members is through more training in the implementation of the interventions in classroom settings to prepare a unified method of action for each individual (Kittelman et al., 2020;Webster-Stratton et al., 2011; Lewallen et al., 2015) This means that the school-based team needs to collaborate in such a way that they are all working toward the same goal for the student's success and produce a plan to reach the desired goal. A common barrier school staff experience is the availability of those with the academic knowledge and time to train the individuals implementing interventions (Charlton et al., 2018). Online training may be used to coach and provide increased training, as it is effective and has many benefits for both the provider and the individual receiving the training (Brennan et al., 2018; Walker & Baird, 2019). Online training is also a cost-effective way of providing training to individuals regardless of location (Gillespie-Lynch et al., 2015; Junco & Salter, 2004).

Implementing interventions with fidelity is a foundational requirement for a BCBA by the Behavior Analyst Certification Board (BACB), which is specified in the code of ethics and best practices guidance (Cooper et al., 2020). As a nonprofit corporation, the BACB established in 1998. The BACB provides certification, networking, resources for daily use, and trackers for continuing education and other needs identified by behavior analysts, governments, and consumers of behavior-analytic services. They also serve as a protection for consumers of behavior-analytic services by ensuring all licensees are following the professional standards of practice (Behavior Analyst Certification Board, 2022). It must be recognized that training on the use of the intervention can help to promote an interventionist's accurate use of the intervention. The training can take place using multiple modalities. One of those is through remote delivery. This study examines the effectiveness of using remote delivery as a means of increasing fidelity of BIP implementation.

Lloveras et al. (2021) conducted a study in which behavior analysts were trained remotely to conduct functional analyses (FA) using a behavioral skill training package, supporting the effective use of remote behavior skills training (BST). Behavior skills training is a way of teaching a task while using at least four steps (a) instruction, (b) modeling, (c) rehearsal, and (d) feedback (Cooper et al., 2020; Gianoumis et al., 2012) Studies have documented the benefits of using remote BST for training purposes (Vanselow & Hanley, 2014). Vanselow and Hanley (2014) were successful in demonstrating the efficacy of using behavioral skills training (BST) as a means to teach skills. Johnson et al. (2022) used BST to implement services remotely allowing for an increase in the range of services and improved access to the quality of care provided. Thus, for this study the researcher used remote BST with teachers to

increase fidelity. The use of remote BST may be a positive option in areas where there is difficulty accessing behavior specialists, a lack of training connection, or a financial restraint.

Remote BST utilizes a virtual connection through the use of an online platform, which connects the trainer to the trainee in order to teach the needed behavior skill (Rios et al., 2020). The skill is trained by first providing virtual instruction and then modeling the skill, followed by role-playing between the trainer and trainee, with feedback on the delivery of the skill (Cooper et al., 2020). Without training, teachers may struggle to find lasting behavior change for their students with behavioral support needs (Gianoumis et al., 2012).

Artifact 2: Research Approach

Research Approach and Protocol

For this study, a multiple baseline across participants was used to collect behavioral data for the three teacher participants in the two elementary schools. This design allowed the researcher to continue with the intervention without returning to the non-treatment condition and ensured that the students continued to receive the support and interventions delineated in the behavior intervention plan (BIP), demonstrating the relationship between the intervention and the effects (Mayer et al., 2019; (Gast & Ledford, 2018). Because the researcher currently works remotely for the participating schools, there was an established professional relationship already between the participants and the researcher. There was, however, no prior acquaintance or knowledge of the students with whom the teacher participants worked.

Using a multiple baseline design in a remote training model provides skill acquisition and fidelity of data retrieval (Wilkinson-Tough, 2018). Multiple baseline designs have previously been used in remote training with teachers in the implementation of an functional behavior

assessment (FBA) and to train staff to take objective session notes (Piazza et al., 2020; Rios et al., 2020). The behavior skills training (BST) took place virtually throughout the data retrieval process for each participant over a 6-week period. Following the training, data were taken on rates of teacher implementation of intervention of a task analysis that aligned with the BIP during a 30-minute block of the day during which problem behavior was most likely to occur.

Methods

Introduction to Artifact 2

The purpose of this study was to examine the effects of a remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). Approval for this study was granted by the University of North Dakota Institutional Review Board. In Artifact 2, the researcher provides the reader with the research approach as a quantitative single case study and answers the research question: What are the effects of a remote behavior skills training program on the teacher percentage of correctly implemented steps of a behavior intervention program.

Setting and Participants

This study was conducted using online, face-to-face technologies, in the administration of all aspects of the study. All data were taken by the researcher through a secure, password protected online platform provided by the district on a secure password protected school computer throughout the delivery of remote training of teacher participants. Once the training was complete, data through the secure online platform were taken using observation of teacher participants within their classroom. All participants were employed in a rural school in the central plains.

The participants of this study included three elementary teachers (K-6), who were identified by school administration as working with students with behavioral concerns and a current BIP. The students with whom they worked were determined to have behavioral concerns by the school district's RTI or MTSS team. During RTI, an evidence-based intervention, a team provides data-based decision making through frequent assessments that guide the high-quality instructions to identify and provide the academic needs of students with behavioral support needs (Brown-Chidsey,2010). The use of MTSS is similar to RTI but expands to address the social-emotional or behavioral concerns and needs of a struggling student (Loftus-Rattan et al., 2021) Behavioral concerns are those documented in teacher referrals for a student who already has a BIP.

All participants had a student with a current BIP that was demonstrated to be functionally appropriate. Functional appropriateness means the intervention was determined to match the function of the problem behavior demonstrated using the Pinkelman and Horner (2016) checklist. Pinkelman and Horner indicated that critical components of any behavior plan include the following: (a) a functionally appropriate competing behavior pathway, (b) function-based behavior support strategies, (c) an implementation plan, and (d) an evaluation plan. To be included in this study, it was required that the BIP was written by a trained professional and that it met the requirements set forth in Pinkelman and Horner's work. An example that would illustrate this would be; if the student's function of the problem behavior was to seek attention, the intervention should focus on behaviors other than the problem behavior. To clarify, the student should get attention for the appropriate behavior versus the inappropriate behavior. Despite the BIP meeting the criteria laid out by Pinkelman and Horner, in all cases, the school had indicated that the BIP was not effective. This ineffectiveness was documented through

student data showing limited progress in decreasing problem behavior and increasing positive behavior, as provided by the teacher participant.

Recruitment

For inclusion in this study, teachers must have had a student above the kindergarten grade level and below the sixth grade with a current BIP. There was no requirement for the student to be served under an IEP or receive special education services. Teachers with students below the kindergarten grade level or above the sixth grade were excluded from this study.

School administration identified potential participants based on the inclusion criteria provided by the researcher. The researcher works remotely for the two schools in this study. A letter to parents was provided explaining the given study in their child's school. Parents were provided with the option to withdraw any teacher observations in the study while their student was present. Interventions delivered during this study were conducted within the special education and/or general education classroom, depending on which was more educationally appropriate for each student. All teachers who participated in this study met the criteria above for inclusion.

To ensure the availability of staff during the school day, the superintendent agreed to collaborate with the researcher throughout this study. This collaboration included logistical aspects, such as coverage of classes, and the availability of staff for participation in the training portion of the study. Training only occurred, however, beyond the contracted school day.

Variables

Dependent Variable

A multiple baseline across participants design was used to collect behavioral data across the three participants. Using a multiple baseline design in a remote behavior skills training model

allowed the researcher to continue with the intervention without returning to the non-treatment condition, demonstrating the relationship between the intervention and the effects (Wilkinson-Tough, 2018). Baseline data were collected while the teacher implemented the current behavior plan and before the delivery of the remote training. Data was collected using task analysis to generate a percentage of correctly implemented steps using behavior skills training (BST). A task analysis is the process of breaking down the complex elements or steps into smaller sequential steps in a behaviorally measurable manner (Cooper et al., 2020). Each BIP for the students was task analyzed with a task analysis developed for each student with whom the teacher participants were working through this study. Following the remote BST, data were taken on the teachers' correct implementation of the BIP.

When making the task analysis, it is imperative to continue data taking through the last step to ensure that each step the individual performs is recorded in its entirety. The teacher took independent secondary data on the percentage of intervals, which included student problem behavior during the observational period conducted by the researcher. Data were collected during a 30-minute block of the day during which problem behavior was most likely to occur. Although the physical student-specific data were not given to the researcher, the teacher participants took a post-training survey to indicate their perceived level of behavior change (positive, negative, or no change) in their students' behaviors to demonstrate the level of effectiveness of the remote behavior skills training. The is because the focus of the study was to determine the efficacy of the remote BST for teachers implementing BIPs with greater fidelity. The teacher perceptions provided additional social validity to the results. Below is an example of the task analysis used for recording both baseline data and observational data during the training, implementation, and maintenance phase.

Figure 1

Example of Task Analysis

Behavior: When student 3 (S3) is given a verbal direction on an upcoming task, she will have a tantrum. Tantrum is identified as laying on the floor, screaming, and at times kicking her feet.

Intervention: Teacher 3 gives S3 two visual activity cards. S3 then puts her choice of the two cards with activities on the Velcro affixed to her desk. A 3-minute timer is then set. When the timer goes off, S3 moves to her chosen task.

Sample Task Analysis

____ Teacher places two activity cards on the student's desk within 10 seconds of the completed assignment to avoid unwanted behaviors.

____ Teacher provides only verbal information to direct student's attention to the cards (e.g., no information is provided about which choice should be selected).

____ After student chooses card, teacher sets a 3-minute timer within 5 seconds.

____ When the timer chimes and student transitions, teacher provides a statement of praise for student transition within 3 seconds.

____ Teacher accurately records (a) time of tantrum onset, (b) if student transitions within 3 seconds of the 3-minute timer chime.

For baseline data, the researcher created a task analysis for the intervention described in the students' BIP. Participants provided times when the implementation of the behavior interventions was most likely to happen. Prior to the behavior skills training, data were taken on the percentage of the task analysis steps the participant correctly implemented with their student. Through remote observation, each step of the task analysis was checked off if the teacher implemented that piece of the intervention or behavior plan, and not checked if that step was not performed. The result was baseline data that provided the percentage of components of the task analysis implemented with fidelity with which each participant implemented the behavior plan prior to the remote behavior skills training.

The researcher hypothesized that, after the remote behavior skills training, the teachers would implement the interventions with increased fidelity. As a result, it was hypothesized that student problem behaviors would also decrease. It was further anticipated that individualized

training with the teacher in initiating and implementing the intervention with the student would be the defining difference in the overall success and outcome of decreasing the problem behaviors.

Independent Variable

The researcher used a remote BST model to train teachers on implementing the interventions documented in the student's behavior plan. Behavior skills training (BST) is an evidence-based intervention for training staff (Parsons et al., 2012). The BST procedure used in this study included the following steps: instructions on how to implement the task, modeling on the proper way to implement the task, rehearsal of task completion, and feedback on the implementation of the task (Ward-Horner & Sturmey, 2012). Following baseline, the researcher used remote BST to teach each intervention step as indicated within the BIP to the teacher participants.

The training package consisted of the following steps:

1. The researcher provided written instructions using a task analysis to identify each step of the presented intervention as designated in the BIP (i.e., modeling, rehearsal, and feedback).

2. First, the trainer went over the task analysis verbally with the participant. The researcher verbally read each step to the teacher participant and then probed for any questions or clarity the teacher may have needed.

3. Each step was separately modeled through role play between the teacher participant and researcher. For example, step one of the task analyses provided states "Teacher places two activity cards on the student's desk within 10 seconds of the onset of student unwanted behavior." The researcher took the role of the teacher, and the teacher took the

role of the student. A table was used in the researcher's mock classroom to act as the

student desk. The teacher advised she was done with her activity, the teacher set a timer

as she waited for the researcher to place two cards on the desk within 10 seconds.

4. Following this, the teacher participant rehearsed the task analysis with the researcher by

reversing roles in role play. Immediate feedback was provided from the researcher during

each step of the training package. The BST took place virtually using a secure, password

protected online platform provided by the district on a secure school computer throughout

the data retrieval process over a 6-week period.

<div align="center">**Results**</div>

Social Validity Survey Results

The following bar graphs represent data from the survey that the teachers were asked to

take prior to the remote training and again after the remote training. The survey consisted of six

questions that participants were asked to answer from their perspectives. Participant 1 reported

an overall better understanding following the remotely delivered training of the BIP (referred to

as Understand BIP in Figure 2), increased implementation confidence (referred to as Increased

Confidence in Figure 2), ability to train others (referred to as Train Others in Figure 2), and

ability to take accurate BIP data (referred to as BIP Data in Figure 2) on the overall behavior

change. Participant 1 rated themselves at understanding the BIP language (referred to as BIP

Language in Figure 2) and their confidence in presenting the BIP to parents (referred to as

Parents and Caregivers in Figure 2) at 100% confidence prior to the training and then rated both

questions with a lower rating following the remote training. The participant stated that this was

because, during the training, the participant realized the lack of training he had in both areas and

felt that he had rated his understanding incorrectly in the beginning. Participants 2 and 3 reported

a better understanding and confidence in all six questions following the training. All participants reported their student had a positive behavior change, according to their independent data, following the remote BST. Please refer to the Appendix B for further information on this survey.

On average, across all participants, there was a 42.45% growth in understanding the BIP, an 81.74% growth in the confidence to implement the BIP, 118.52% growth in understanding the language within the BIP, 441.67% growth in confidence in the ability to train others to implement the BIP, 128.33% growth in confidence of explaining the BIP to parents and caregivers, and 341.67% growth in their confidence of taking accurate data on the implementation of the BIP and behavioral change. It should be noted that the researcher did not take any data on the students themselves. The teacher, however, continued to take behavioral data as indicated by the BIP, which included the time of onset of behavior, what the student was doing prior, and how long the behavior lasted.
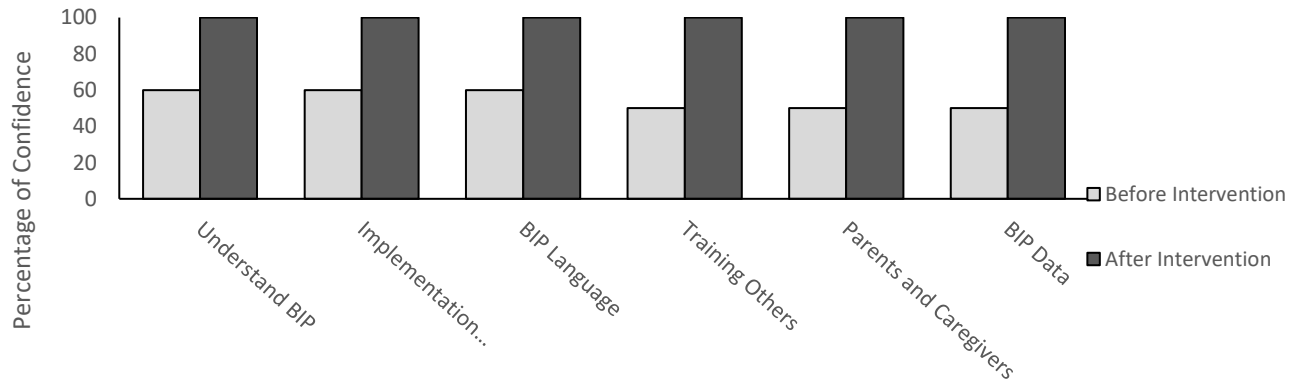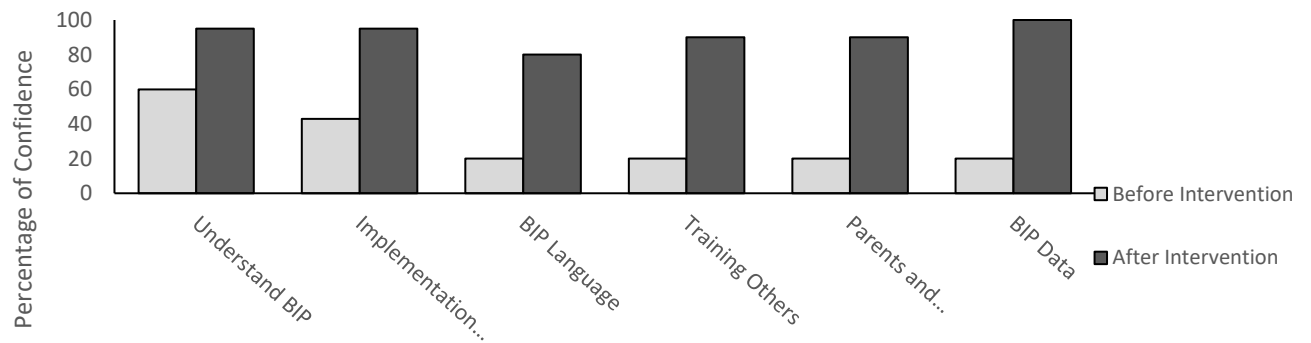
Figure 2

Survey Results
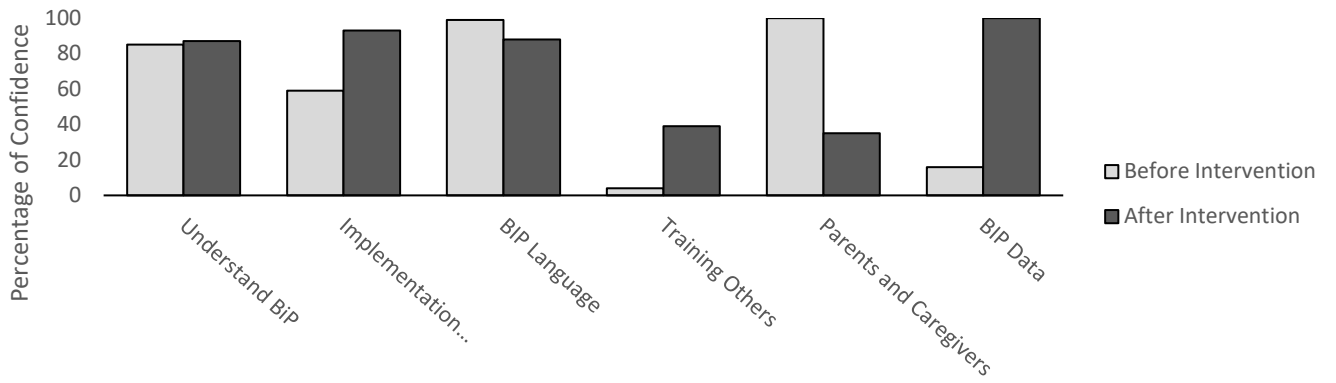
Participant 1

Participant 2

Participant 3

Teacher Implementation Results

The data for each of the three teacher participants are shown in Table 1 and Figure 3. No participant implemented the given BIP with more than 63% accuracy during baseline. Participants 1 and 3 stayed below 40% accuracy when implementing their BIP during baseline. Mastery criteria for the training were set by the researcher across all three participants. Mastery criteria included three consecutive training sessions where the participant implemented the intervention with 100% accuracy according to the task analysis. Thus, all boxes had to be checked on the task analysis for three consecutive training sessions during the training phase for the participant to move into the intervention stage with their student.

Participant 1 started remote BST training, and once mastery criteria were met, they moved into implementing the learned BIP. For Participant 1, this took four sessions, and for Participants 2 and 3, this took three sessions. While Participant 1 was in the intervention phase, Participants 2 and 3 stayed at baseline, and data continued to be collected. The same mastery criteria were used as a guideline for retention during the intervention phase. For example, participants who did not meet 100% in three consecutive observations during week one of intervention would have been retrained. All participants, however, met mastery criteria in the first week of training. Once mastery criteria were met during the intervention phase, the participants immediately moved into the maintenance phase. For Participant 1, this was after 4 days, and for Participants 2 and 3, this was after 3 days. Once participants moved into the maintenance phase, they remained there until all participants made it to the maintenance phase.

During the maintenance phase, all participants scored 90% or above for the duration of the maintenance observations. The maintenance phase was the time during which data was being taken to observe whether the participants were maintaining what they learned while another

participant was being trained. Thus, this study provides evidence that remote behavioral training of a BIP may support some teachers as they try to implement the intervention with fidelity and may be beneficial for further research on a larger scale.

Table 1

Percentage of Correct Participant Responses Per Phase

	Teacher 1		
Session	Baseline Percent of Fidelity	Implementation Percent of Fidelity	Maintenance Percent of Fidelity
1	20		
2	20		
3	20		
4		90	
5		100	
6		100	
7		100	
8			100
9			90
10			100
11			100
12			100
13			90
14			90
15			100
16			100

Teacher 2			
Session	Baseline Percent of Fidelity	Implementation Percent of Fidelity	Maintenance Percent of Fidelity
1	38		
2	63		
3	50		
4	50		
5			
6	63		
7	63		
8	50		
9		100	
10		100	
11		100	
12			90
13			
14			100
15			100
16			100

Teacher 3			
Session	Baseline Percent of Fidelity	Implementation Percent of Fidelity	Maintenance Percent of Fidelity
1	25		
2	25		
3	13		
4	38		
5	25		
6	38		
7	38		
8	25		
9	13		
10	25		
11	25		
12		100	
13		100	
14		100	
15			100
16			100

Figure 3

Research Study Results

Discussion

Several researchers have provided evidence that remote training is effective, cost-efficient, and provides needed training that otherwise may not be accessible (Piazza et al., 2020; Rios et al., 2020). The results of this study included generalization of the learned skill through remote BST and the importance of training those implementing BIPs. The results of this study extend these findings to include the use of a task analysis as an effective component when using remote BST to increase the fidelity of implementation of a student's BIP.

The research also indicated interesting findings for one of the three participants. The participant over-estimated their self-preparedness and ability to implement the BIP with fidelity. There is unprepared difficulty for some teachers as they dive into the implementation of a school-based behavior intervention plan (BIP) as indicated by participants through the survey results. Educational research indicates that overestimation of ability is common for new teachers when in training but tends to drop once implementation of training takes place (Hoy & Spero, 2005). As teachers gain more experience in a particular field, a teacher feels more efficient or able to effectively implement a given task (Wray et al., 2022).

Looking at the multiple trainings that take place in any given school year for both general education teachers and special education teachers, it may be equally important for schools to include a training for the interventions that teachers are implementing within their own classrooms to make positive changes. Remote training would be a cost-effective way to provide intervention training and at the same time provide the effective increase in teacher understanding of the intervention to be equipped in making that positive difference within the general school setting, and in special education setting (Gillespie-Lynch et al., 2015; Junco & Salter, 2004).

Training all teachers that work with a student to implement an intervention with fidelity may bring a faster, more generalized, and longer lasting positive change for the teacher and student.

Limitations

This research had several limitations, such as the small number of participants, lack of paperwork showing that the FBA correctly identified the function of behavior, difficulty with replication due to lack of technically written BIPs, availability of teachers during the workday, and internet connection. These implications must be considered within some methodological limitations. The researcher set up times approximated to be the times of increased behavior presented by the student. This, however, did not mean that the student would present with that behavior. This resulted in a rescheduling or increased observation time to observe the teacher implementing the BIP. This was difficult due to unforeseen circumstances and could not be controlled.

A challenge that the researcher overcame was finding appropriate participants who met the inclusion criteria and the availability of participants during the school day. The plan to overcome the appropriate participant limitations was to provide a checklist that identified the critical components of each behavior intervention plan needed for this study's inclusion. Further, it should be noted that there was some difficulty with replication of BIPs for this study due to the laymen terms used within each document. For example, one BIP introduced the use of a round carpet, but the teacher had three in her classroom. Thus, the researcher had to get further understanding from the teacher to replicate the BIP for this study. One of the students chosen initially was unable to participate, leaving three teacher participants for participation in this

study. Using a smaller number of participants can be problematic for reasons of external validity and generalizing the findings to a larger population.

The school district's scheduled break presented the researcher with a 1-week gap in implementation and observations. The researcher, however, was able to conduct the teacher training during the final 3 days of break to decrease the gap in training. As in any virtual connection, internet reliability posed an intermittent issue, but does not affect how results should be interpreted. Connection times were within 3 minutes of the scheduled time for observation, and reconnection during a slow connection period was immediate (within 60 seconds) for each occurrence. Although internet connectivity was a notable concern, it presented no reliability concern for this study.

Implications for Research

It would be beneficial for further research to take place on the student's behavior change following the teacher training of the BIP. Gathering data on the teacher implementation and on the student's, behavior changes at the same time would provide the relational data to connect the teacher training to the student behavior change. This would provide more clarity to the behavior change in the student following the virtual BIP training.

Further, a generalized study in which parents are trained to implement behavior plans within the home environment using remote BST would be beneficial for further understanding of the generalization ability of remote training and the possibility of increased fidelity across settings. Teachers and practitioners may use this information when considering the use of remote BST to provide access to training in rural areas.

It would also be beneficial to expand this research to an increased number of participants to include teachers with students outside of the elementary setting. This would provide a broader indication of the generalization for the remote BST training model and provide relative information on the use for older student needs through the use of a behavior intervention plan (BIP).

Using remote behavior training to train teachers in classroom management, or professional development may be an effective expansion on the use of remote training. In this sense, remote training may be used as a preventative measure to improve teacher well-being and student engagement; a task that recent studies have shown to be needed (Hepburn et al., 2020).

Conclusion

The purpose of this study was to examine the effects of remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). In this study the use of Remote BST was effective in implementation fidelity of the BIP, was a cost-effective training model, and was deemed to be of help to students as indicated by the participant teachers. This study also addressed the following research question: What are the effects of a remote behavior skills training program on the teacher percentage of correctly implemented steps of a behavior intervention program.

The researcher was able to address the research question using three artifacts. Artifact 1 addresses the purpose of this study as the researcher examines the effects of remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). Artifact 2 provides the reader with the

research approach as a quantitative single case study. It provides an overview of the methods used for this research design. Artifact 3 is a scholarly article that has been formatted for publication, following the BACB guidelines, and the guidelines for publication for a special education scholarly journal. The document represents the researcher's implementation of a solution to the problem of implementing behavior intervention plans with fidelity.

The results of this study demonstrate several implications for research and practice. These implications must be considered within some methodological limitations. This study was presented to the administration across the school district via email from the District Superintendent. Following the email, the researcher was provided six potential teacher participants and 11 unsuccessful BIPs for students across the district. Five of the six teachers met the inclusion criteria, and 4 BIPs met the inclusion criteria.

This study provides evidence that using a remote training package, using BST to train teachers on how to implement a BIP, can improve the fidelity in which staff implement current student behavior intervention plans. This study also provides evidence that remote behavioral training of a BIP may support some teachers as they try to implement the intervention with fidelity and may be beneficial for further research on a larger scale. Results of this study have implications for research and practice, and policy regarding the fidelity in which public schools implement their behavior intervention plans.

Artifact 3: Implementation of the Solution

Artifact 3 (see Appendix C) is a scholarly article that has been formatted for publication, following the BACB guidelines and the guidelines for publication with a special education scholarly journal. The document represents the researcher's proposal of a solution to the problem of implementing behavior intervention plans with fidelity.

Artifact 3, in completion of the requirements for the University of North Dakota doctoral program, is a stand-alone document that the researcher believes, if published, could be used as a tool for replication by school-based teams, to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). The researcher also believes that, if published, the document could be used by practitioners to replicate the training component to increase fidelity of implementation of behavior intervention plans within the clinical setting.

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Appendix A

Key Terms

Behavioral Skills Training. A way of teaching a task while using at least four steps (a) instruction, (b) modeling, (c) rehearsal, and (d) feedback (Cooper et al., 2020; Gianoumis et al., 2012).

Behavioral Intervention Plan. A concrete intervention plan that is put in document form that is used as a behavior management tool after an observation was made using a functional behavior assessment (Mauro, 2020).

Functional Behavior Assessment (FBA). A method of finding out why someone presents a simple identified behavior (Mayer et al., 2019).

Individualized Education Plan (IEP). A document used in an educational environment that provides detailed accommodations and modifications to generalized settings to reach the designated goals (Ezell, 2017).

Response to Intervention (RTI). An evidence-based intervention, a team provides data-based decision making through frequent assessments that guide the high-quality instructions to identify and provide the academic needs of students with behavioral support needs (Brown-Chidsey,2010).

Multitiered System of Support (MTSS). Expands the RTI intervention to address the social-emotional or behavioral concerns and needs of a struggling student (Loftus-Rattan et al., 2021).

Appendix B

Social Validity Survey Excerpt

This appendix presents an example of the social validity survey and how it was presented.

Instruction: Along this scale, with the left-hand side representing "not at all" and the right-hand side representing "absolutely yes!" indicate your response to the following questions.

#	Question	
1	I feel confident in training paraprofessionals and other staff in implementing the BIP.	
2	I feel confident in explaining the BIP to parents and caregivers.	
3	I feel confident that my BIP data is accurate.	

Appendix C

Artifact 3: Implementation of the Solution

Artifact 3 is a scholarly article that has been formatted for publication, following the BACB guidelines and the guidelines for publication with a special education scholarly journal. The document represents the researcher's proposal of a solution to the problem of implementing behavior intervention plans with fidelity.

Increasing Implementation Fidelity of Behavior Intervention Plans in Public Schools Following Delivery of Remote Behavior Skills Training for Staff

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07/20/2022

Abstract

The purpose of this study was to examine the effects of a remote training to educate teachers in effectively implementing interventions within a Behavior Intervention Plan (BIP) following remote behavior skills training (BST). The study was conducted with elementary school teachers who work with students' who have a current BIP in kindergarten through fifth grade who continue to exhibit problematic behaviors. Teachers were trained to effectively implement the students' current BIPs, which consisted of teachers reporting on the effectiveness of the intervention. The primary dependent variable for this study was the percentage of intervals that include teacher intervention implementation with fidelity during a 30-minute block of the day during which problem behavior is most likely to occur. Teacher behavior was measured, reported, and graphed as a means of effective BST training for teachers. Current behavior plans designed by the interdisciplinary team in the public school by which intervention strategies have been implemented were used as indicated within the behavior plan. This study examined the effects of providing behavioral interventions after remote behavior skills training to staff with a board-certified behavior analyst (BCBA). The study occurred across two separate school districts with similar providers that make up their interdisciplinary teams. The results of the revealed show that collaboration with a BCBA using remote BST training can effectively increase the fidelity of implementing the intervention and potentially decrease problem behaviors. Through remote BST, staff were trained to implement the interventions provided in the current behavior plan for students with problem behaviors.

Keywords: Behavior Intervention Plan (BIP), Behavior Skills Training (BST), Remote training

Introduction

Many schools report an increase in problematic behaviors within the classroom setting (Baranauskas, 2021; Weissberg, 2019; Weisburst, 2019). For students who exhibit problematic behaviors that interfere with the learning of self or the learning of others, the Individuals with Disabilities Act of 2004 (IDEA,2004) requires interdisciplinary teams to examine the necessity of developing an individualized education program (IEP) as well as behavioral intervention plans (BIPs) for those students whose behavior impedes their performance or the performance of others (Kral, 2018).

As classroom teachers address contextually inappropriate behaviors, they may reach out to other team members for guidance in decreasing the problematic behaviors exhibited in the classroom. These team members comprise the interdisciplinary team that works to address problem behaviors exhibited by students within the school setting. Interdisciplinary teams often lack knowledge regarding how to use positive behavioral support systems to support behavioral improvement (Nancarrow et al., 2013). Due to the didactic nature of traditional staff training/professional development, school staff may not implement student intervention plans with fidelity (Parsons et al., 2012). Although the use of a BIP is considered an evidence-based practice, classroom personnel may not have access to training that supports the evidence-based implementation of the BIP (Webster-Stratton & Reid,2018, Webster-Stratton et al., 2008).

The lack of effective training in BIP implementation may affect the ability of schools to appropriately address problematic behaviors, leaving teachers and administrators in need of further support (Billingsley & Bettini, 2019). Further, when school personnel are not adequately trained, families may blame school personnel for being unable to effectively teach their children (Robertson et al., 2020, Eber et al., 2010). This can lead to a disconnection of the school team

and less cohesion in the overall intervention. Often, the parents have exhausted all the resources they are aware of while maintaining a healthy environment at home with their child. Most often, parents then look to the interdisciplinary school team to provide further connections in and outside of the school setting. Itinerant staff and outside agencies may provide support within the school setting to address the problematic behaviors. These supports are made up of an interdisciplinary team that may include social workers, school psychologists, speech pathologists, physical or occupational therapists, or occasionally behavior analysts.

Development of Intervention Plans in Schools

School personnel develop behavior plans using multiple components for their behavior plans that are usually informed by the interdisciplinary team (Sugai & Horner, 2009). Schools may rely on personnel in the public-school setting who have a background in effectively designing, training, and implementing the interventions used to reduce problematic behaviors. While a team or specialist may develop the plan, the implementation is often left to the teacher, who may have little, if any, training in implementing the interventions with fidelity (Flower et al., 2016).

Ideally, an interdisciplinary team collaborates in identifying the applicable behavior principles in designing the behavior plan, such as individual needs, making sure to address the functionality and appropriateness along with the training and fidelity long term. The interdisciplinary team may collaborate on the need for further assessments and plans for implementation or correction if necessary. It is imperative for all team members to find common ground and rely on the many minds and skillsets of the interdisciplinary team members to work together to help decrease the problem behaviors (Sugai & Horner, 2002).

Many teachers are not adequately trained, nor are they prepared, to deal with the heightened behaviors in classrooms across the United States (Samudre et al., 2021; Collin et al., 2013). The number of students with increasingly severe problematic behaviors continues to rise, illuminating the need for multitiered, specialized intervention plans to bridge the gap between behavior and learning (Kern et al., 2020; Benner et al., 2013). It may be advisable to consider adding the training, consultation, and collaboration of a BCBA to support general education teachers due to their comprehensive training in behavior (Sutherland et al., 2020).

Because supporting problem behaviors can be a multitiered approach and that the number of students with problematic behaviors as well as the severity of the exhibited behaviors is increasing, schools recognize the need for specialized interventions that bridge the gap between behavior and learning (Floress et al., 2021; Sugai & Horner, 2019; Gable et al., 2010). With a focus on inclusion, more general education teachers are being asked to perform behavioral assessments such as an FBA, and the lack of training or proper implementation has become more recognized (McCahill et al., 2014).

When teachers do not receive adequate training, they may use tools and strategies that may not have been proven through evidence-based research to work. As behaviors worsen, teachers and staff may look for increased support from the interdisciplinary team to compose the behavior plan with its many facets (Wehby & Kern, 2014). The teacher may often try to implement interventions or a classroom behavior plan on their own using interventions such as differential reinforcements. When these types of interventions are implemented incorrectly or problem behaviors are essentially left untreated, the situation may increase the problem behavior (Siceloff et al., 2017; Trussell, 2008). Increased problem behaviors often prompt the administration to enforce next-step discipline policies (Black, 2018; Curran et al., 2019).

Next step discipline policies can be different for each student across disabilities and behaviors. Unfortunately, for example, about 15% of students with ASD have frequently experienced school disciplinary action, 7.9% encounter some type of police contact, and 7.8% end up being hospitalized (Turcotte et al., 2017). Further, the experience of any one of these three increases the risk of experiencing one of the others later (Turcotte et al., 2017). Training all school staff has been suggested to be an efficient way of decreasing student referrals for misbehavior which, in turn, reduces behavior-based referrals for special education evaluation (Polirstok & Gottlieb, 2006). One way to train staff is with the use of behavior skills training (BST). Behavior skills training is a way of teaching a task while using at least four steps (a) instruction, (b) modeling, (c) rehearsal, and (d) feedback (Cooper et al., 2020).

Remote Behavior Skills Training

Studies have captured the benefits of using remote BST for training purposes (e.g., Vanselow & Hanley, 2014). Vanselow and Hanley (2014) were successful in demonstrating the efficacy of using behavioral skills training (BST) as a means to teach skills. In a recent study by Johnson et al. (2022), implementing services remotely allowed for an increase in the range of services and improved access to the quality of care provided. The remote training model has been shown to provide skill acquisition and fidelity of data retrieval (Belisle et al., 2021). The use of remote BST may be a positive option in areas where there is difficulty accessing behavior specialists, a lack of training connection, or a financial restraint.

Remote BST is a virtual connection, using a secure, password protected online platform, which connects the trainer to the trainee to teach the needed behavior skill (Rios et al., 2020). The skill is trained by first providing virtual instruction then modeling the skill, followed by role

playing between the trainer and trainee, with feedback on the delivery of the skill. Without training, teachers struggle to find lasting behavior change for their struggling students.

When addressing problem behaviors, teachers commonly try simple classroom reinforcements as a first effort, as required by RTI/MTSS, such as a token system to reinforce wanted behaviors (Cooper et al., 2020). Classroom reinforcements are generally the first step within the public-school setting and are viewed as part of the first support. Behavior analytic interventions use evidence-based procedures as the foundation in reducing problem behavior within any environment have been proven to provide solutions to the given problem. Many times, however, these are not implemented with fidelity (Robertson et al., 2020; Hirsch et al., 2017). More training is needed for those implementing the interventions in classroom settings to effectively decrease the problem behaviors or add to the number of a team of individuals who will implement the plans with fidelity (Kittelman et al., 2020; Lewallen et al., 2015; Webster-Stratton et al., 2011) A common barrier is the availability of staff with the academic knowledge and time to train the individuals implementing the intervention (Charlton et al., 2018). Online training may be used to coach and provide increased training as it is effective and has many benefits for both the provider and the individual receiving the training (Brennan et al., 2018; Walker & Baird, 2019). Also, online training is a cost-effective way of providing training to individuals regardless of location (Gillespie-Lynch et al., 2015; Junco & Salter, 2004).

Methods

Setting and Participants

A multiple baseline across participants design was used for this study. Multiple baseline across participants designs have previously been used in remote training interventions to train

teachers in the implementation of a functional behavior assessment and to train staff to take objective session notes (Piazza et al., 2020; Rios et al., 2020). Approval for this study was granted by the University of North Dakota Institutional Review Board.

The researcher conducted all of the study activities, including the behavior skills training and observation, remotely using a secure, password protected online platform provided by the district on a secure school computer throughout the delivery of remote training of teacher participants. Observations were administered remotely through the teacher's computer camera that was placed on her desk, and connected by the teacher to the online software, in the front of the classroom. The camera was in reverse mode so that the researcher could see the teacher implementing the intervention. All data were also taken by the researcher through the online platform during the teachers' trainings. Once the training was complete, data were taken through the online source while the teacher was in her classroom.

The participants of this study included elementary teachers (K-6) identified by the school administration as serving students identified by the school district's behavioral support team as exhibiting behavioral concerns. Behavioral concerns were documented in teacher referrals for a student who already had a BIP. In all cases, the school indicated that the BIP was not effective. Ineffectiveness of the BIP was indicated by the teacher and administrator of the school due to limited or no progress in decreasing problem behavior or an increase the unwanted behavior.

All participants had a student with a current BIP that was demonstrated to be functionally appropriate (i.e., intervention matches the function of the problem behavior) as indicated by alignment with the Pinkelman and Horner (2016) checklist. For example, if the student's function of the problem behavior was attention, the intervention focused on behaviors other than

the problem behavior. Pinkelman and Horner indicated that critical components of any behavior plan include the following: (a) competing behavior pathway, (b) function-based behavior support strategies, (c) an implementation plan, and (d) an evaluation plan. This checklist was used for the inclusion of BIPs within this study, along with the requirement that the BIP must also have been written by a trained professional such as a School Psychologist or BCBA.

Recruitment

This study was presented to administrators at a school district in a northern U.S. plains state via email from the district superintendent. Following the email, the researcher was provided six potential teacher participants and 11 BIPs that were reported to be not working for students across the district. Five of the six teachers met the inclusion criteria, and four BIPs met the inclusion criteria.

School staff identified potential participants based on the inclusion criteria provided to them by the researcher. A letter to parents was provided explaining the study in their child's school. The researcher provided the parents with the option to withdraw any teacher observations in the study while their student was present. The researcher delivered the interventions either within the special education or general education classroom, depending on which was more educationally appropriate for the target student. All teachers who participated in this study met the criteria above to be considered for inclusion in the study. To address the availability of staff during the school day, the superintendent agreed to collaborate with the researcher throughout this study.

Dependent Variable

The researcher took each BIP and created a task analysis of the provided intervention for the student's BIP. Participants provided times when implementing the behavior interventions

was most likely to happen. When the intervention was implemented, each step of the task

analysis was then checked off if the teacher implemented that piece of the intervention correctly

according to the student's behavior plan.

Baseline data were collected while the teacher implemented the current behavior plan and

before the delivery of the remote training using a task analysis. This was used to generate a

percentage /calculation of correctly implemented steps using BST. Following the training, data

were taken on each teacher's correct implementation of the BIP. The researcher continued to use

the same task analysis in observing the teachers each day following the training as they

implemented the BIP with the student.

Figure 1

Example of Task Analysis

Behavior: When student 3 (S3) is given a verbal direction on an upcoming task, she will have a tantrum. Tantrum is identified as laying on the floor, screaming, and at times kicking her feet.

Intervention: Teacher 3 gives S3 two visual activity cards. S3 then puts her choice of the two cards with activities on the Velcro affixed to her desk. A 3-minute timer is then set. When the timer goes off, S3 moves to her chosen task.

Sample Task Analysis

____ Teacher places two activity cards on the student's desk within 10 seconds of the completed assignment to avoid unwanted behaviors.

____ Teacher provides only verbal information to direct student's attention to the cards (e.g., no information is provided about which choice should be selected).

____ After student chooses card, teacher sets a 3-minute timer within 5 seconds.

____ When the timer chimes and student transitions, teacher provides a statement of praise for student transition within 3 seconds.

____ Teacher accurately records (a) time of tantrum onset, (b) if student transitions within 3

seconds of the 3-minute timer chime.

Independent Variable

The researcher used a remote BST model to train teachers on adequately implementing the interventions documented in the student's behavior plan. Behavior skills training is an evidence-based intervention for training staff (Parsons et al., 2012). The BST procedure used in this study included the following steps: instructions on how to implement the task, modeling on the proper way to implement the task, rehearsal of task completion, and feedback on the implementation of the task (Ward-Horner & Sturmey, 2012). Following baseline, the researcher used remote BST to teach the teachers each intervention step, as indicated within the BIP.

The training package consisted of written instructions using task analysis to identify each step of the presented intervention as designated in the BIP (i.e., modeling, rehearsal, and feedback).

The training package consisted of the following steps:

1. The researcher provided written instructions using a task analysis to identify each step of the presented intervention as designated in the BIP (i.e., modeling, rehearsal, and feedback).

2. First, the trainer went over the task analysis verbally with the participant. The researcher verbally read each step to the teacher participant and then probed for any questions or clarity the teacher may have needed.

3. Each step was separately modeled through role play between the teacher participant and researcher. For example, step one of the task analyses provided states "Teacher places two activity cards on the student's desk within 10 seconds of the onset of student unwanted behavior." The researcher took the role of the teacher, and the teacher took the

role of the student. A table was used in the researcher's mock classroom to act as the

student desk. The teacher advised she was done with her activity, the teacher set a timer

as she waited for the researcher to place two cards on the desk within 10 seconds.

4. Following this, the teacher participant rehearsed the task analysis with the researcher by

reversing roles in role play. Immediate feedback was provided from the researcher during

each step of the training package. The BST took place virtually using a secure online

platform provided by the district on a secure school computer throughout the data

retrieval process over a 6-week period.

Secondary Data

The teacher took independent secondary data on the percentage of intervals that included

student problem behavior during a 30-minute block of the day during which problem behavior

was reportedly most likely to occur. These data were not given to the researcher. The teachers,

however, took a post-training survey to indicate if there was a positive, negative, or no behavior

change for their students.

Research Design

A multiple baseline across participant design was used to collect behavioral data across

the five participants within the elementary schools. This design allowed the researcher to

continue with the intervention without returning to the non-treatment condition demonstrating

the relationship between the intervention and the effects (Mayer et al., 2019). Using a multiple

baseline design in a remote training model has been shown to provide increased skill acquisition

(Belisle et al., 2021). Multiple baseline designs have previously been used in remote training

interventions to train teachers in the implementation of a functional behavior assessment and to

train staff to take objective session notes (Piazza et al., 2020; Rios et al., 2020). The researcher

did not take any data on changes to the student behavior during the study. The teacher, however, continued to take behavioral data as indicated by the BIP.

Pre- and Post-Survey Data

The following bar graphs represent data from the survey that teachers were asked to take prior to the remote training and again after the remote training. The survey consisted of six questions that participants were asked to answer from their perspective. Participant 1 reported an overall better understanding following the remotely delivered training of the BIP, increased implementation confidence, ability to train others, and ability to take accurate BIP data on the overall behavior change. Participant 1 rated themselves at understanding the BIP language and their confidence in presenting the BIP to parents at 100% confidence prior to the training and then rated both questions with a lower rating following the remote training. Participant 1 stated that this was because, during the training, he realized the lack of knowledge he possessed in both areas and felt that he had rated his understanding incorrectly in the beginning. Participants 2 and 3 reported a better understanding and confidence in all six questions following the training. All participants reported their student had a positive behavior change according to their independent data following the remote BST. On average, across all participants, there was a 42.45% growth in understanding the BIP, an 81.74% growth in the confidence to implement the BIP, 118.52% growth in understanding the language within the BIP, 441.67% growth in confidence in the ability to train others to implement the BIP, 128.33% growth in confidence of explaining the BIP to parents and caregivers, and 341.67% growth in their confidence of taking accurate data on the implementation of the BIP and behavioral change.
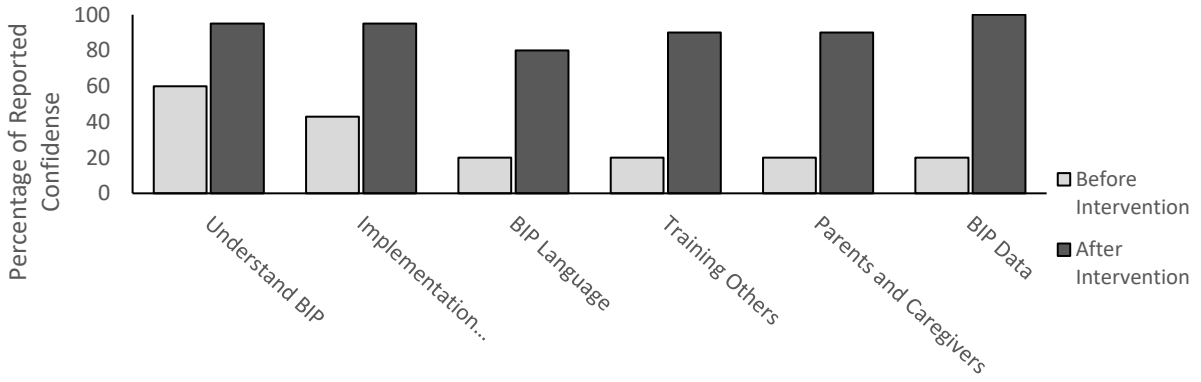
Figure 2

Survey Results
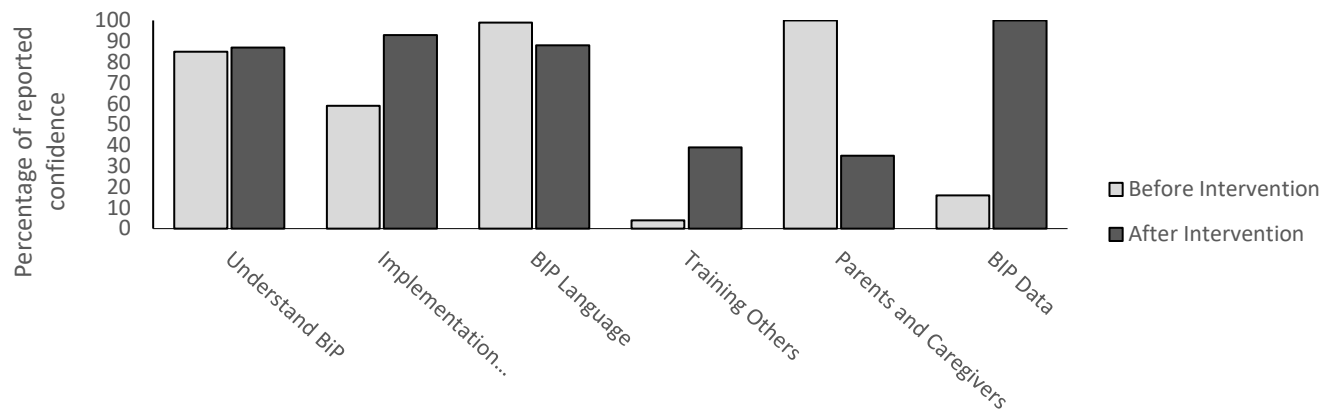
Participant 1
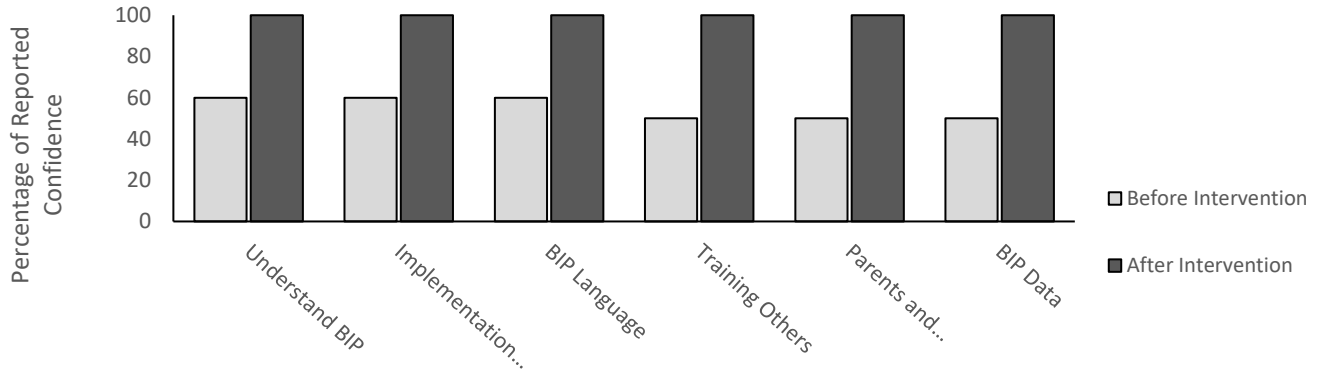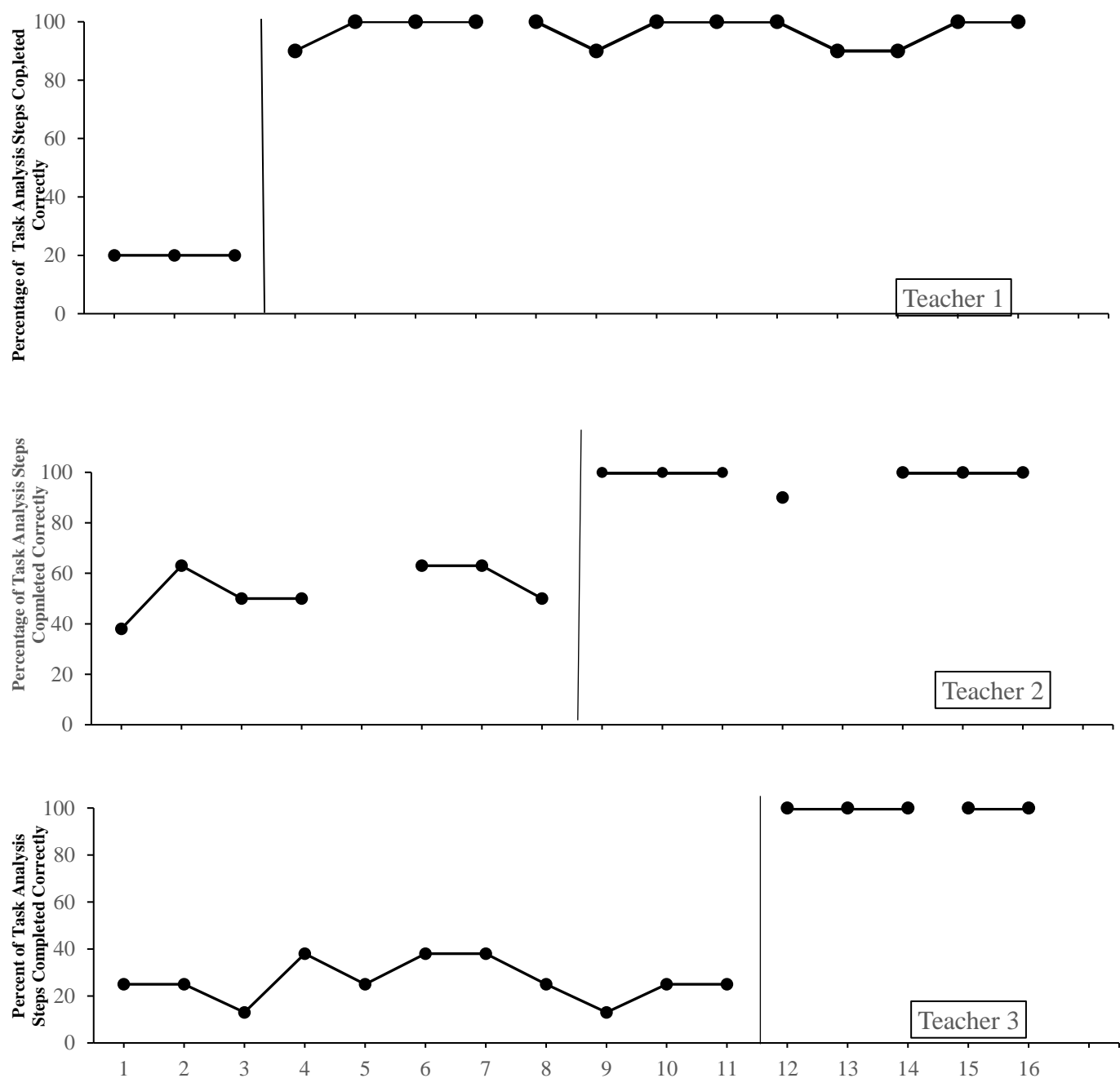

Participant 2

Participant 3

Results

During baseline, none of the participants implemented the given BIP with more than 63%
accuracy. Participants 1 and 3 stayed below 40% accuracy when implementing their BIP during
baseline. Participant 1 started remote BST training, and once mastery criteria of three
consecutive sessions with 100% accuracy were met, moved into implementing the learned BIP.
For Participant 1, this took four sessions, and for Participants 2 and 3, this took three sessions.
While Participant 1 was in the intervention phase, Participants 2 and 3 stayed at baseline, and
data continued to be collected. The same mastery criteria were used as a guideline for retention
with participants during the intervention phase. For example, participants who did not meet
100% in three consecutive observations during week one of intervention would have been
retrained. All participants, however, met mastery criteria in the first week of training. Once
mastery criteria were met during the intervention phase, participants immediately moved into the
maintenance phase. For Participant 1, this was after 4 days, and for Participants 2 and 3, this was
after 3 days. Once participants moved into the maintenance phase, they remained there until all
participants made it to the maintenance phase. During the maintenance phase, all participants
scored 90% or above for the duration of the maintenance observations.

Figure 3

Research Study Results

Discussion

Several researchers have provided evidence that remote training is effective, cost-efficient, and provides needed training that otherwise may not be accessible (Piazza et al., 2020; Rios et al., 2020). The results of this study included generalization of the learned skill through remote BST and the importance of training those implementing BIPs. The results of this study extend these findings to include the use of a task analysis as an effective component when using remote BST to increase the fidelity of implementation of a student's BIP.

The research also indicated interesting findings for one of the three participants. The participant over-estimated their self-preparedness and ability to implement the BIP with fidelity. There is unprepared difficulty for some teachers as they dive into the implementation of a school-based behavior intervention plan (BIP) as indicated by participants through the survey results. Educational research indicates that overestimation of ability is common for new teachers when in training but tends to drop once implementation of training takes place (Hoy & Spero, 2005). As teachers gain more experience in a particular field, a teacher feels more efficient or able to effectively implement a given task (Wray et al., 2022).

Looking at the multiple trainings that take place in any given school year for both general education teachers and special education teachers, it may be equally important for schools to include a training for the interventions that teachers are implementing within their own classrooms to make positive changes. Remote training would be a cost-effective way to provide intervention training and at the same time provide the effective increase in teacher understanding of the intervention to be equipped in making that positive difference within the general school setting, and in special education setting (Gillespie-Lynch et al., 2015; Junco & Salter, 2004).

Training all teachers that work with a student to implement an intervention with fidelity may bring a faster, more generalized, and longer lasting positive change for the teacher and student.

Limitations

This research had several limitations, such as the small number of participants, lack of paperwork showing that the FBA correctly identified the function of behavior, difficulty with replication due to lack of technically written BIPs, availability of teachers during the workday, and internet connection. These implications must be considered within some methodological limitations. The researcher set up times approximated to be the times of increased behavior presented by the student. This, however, did not mean that the student would present with that behavior. This resulted in a rescheduling or increased observation time to observe the teacher implementing the BIP. This was difficult due to unforeseen circumstances and could not be controlled.

A challenge that the researcher overcame was finding appropriate participants who met the inclusion criteria and the availability of participants during the school day. The plan to overcome the appropriate participant limitations was to provide a checklist that identified the critical components of each behavior intervention plan needed for this study's inclusion. Further, it should be noted that the BIPs used for this study were not written technologically, and there was some difficulty with replication. One of the students chosen initially was unable to participate, leaving three teacher participants for participation in this study. Using a smaller number of participants can be problematic for reasons of external validity and generalizing the findings to a larger population.

The school district's scheduled break presented the researcher with a 1-week gap in implementation and observations. The researcher, however, was able to conduct the teacher training during the final 3 days of spring break to decrease the gap in training. As in any virtual connection, internet reliability posed an intermittent issue, but does not affect how results should be interpreted. Connection times were within 3 minutes of the scheduled time for observation, and reconnection during a slow connection period was immediate (within 60 seconds) for each occurrence. Although internet connectivity was a notable concern, it presented no reliability concern for this study.

Implications for Research

It would be beneficial for further research to take place on the student's behavior change following the teacher training of the BIP. This would provide more clarity to the behavior change in the student following the virtual BIP training and provide more relational data. Further, a generalized study in which parents are trained to implement behavior plans within the home environment using remote BST would be beneficial for further understanding of the generalization ability of remote training and the possibility of increased fidelity across settings. Teachers and practitioners may use this information when considering the use of remote BST to provide access to training in rural areas.

It would also be beneficial to expand this research to an increased number of participants to include teachers with students outside of the elementary setting. This would provide a broader indication of the generalization for the remote BST training model and provide relative information on the use for older student needs through the use of a behavior intervention plan (BIP).

Using remote behavior training to train teachers in classroom management, or professional development may be an effective expansion on the use of remote training. In this sense, remote training may be used as a preventative measure to improve teacher well-being and student engagement; a task that recent studies have shown to be needed (Hepburn et al., 2020).

Conclusion

The purpose of this study was to examine the effects of remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). This study also addressed the following research question: What are the effects of a remote behavior skills training program on the teacher percentage of correctly implemented steps of a behavior intervention program.

The researcher was able to address the research question using three artifacts. Artifact 1 addresses the purpose of this study as the researcher examines the effects of remote training to educate teachers in effectively implementing interventions within a behavior intervention plan (BIP) following remote behavior skills training (BST). Artifact 2 provides the reader with the research approach as a quantitative single case study. It provides an overview of the methods used for this research design. Artifact 3 is a scholarly article that has been formatted for publication, following the BACB guidelines, and the guidelines for publication for a special education scholarly journal. The document represents the researcher's implementation of a solution to the problem of implementing behavior intervention plans with fidelity.

The results of this study demonstrate several implications for research and practice. These implications must be considered within some methodological limitations. This study was presented to the administration across the school district via email from the District Superintendent. Following the email, the researcher was provided six potential teacher

participants and 11 unsuccessful BIPs for students across the district. Five of the six teachers met the inclusion criteria, and 4 BIPs met the inclusion criteria.

This study provides evidence that using a remote training package, using BST to train teachers on how to implement a BIP, can improve the fidelity in which staff implement current student behavior intervention plans. This study also provides evidence that remote behavioral training of a BIP may support some teachers as they try to implement the intervention with fidelity and may be beneficial for further research on a larger scale. Results of this study have implications for research and practice, and policy regarding the fidelity in which public schools implement their behavior intervention plans.