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Utilizing Paraeducators to Increase Treatment Integrity of Behavior Interventions Through the Use of Performance Feedback

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Education

by

Alessandra Cipani

June 2018

Dissertation Committee:
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2018

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ABSTRACT OF THE DISSERTATION

Utilizing Paraeducators to Increase Treatment Integrity of Behavior Interventions Through the Use of Performance Feedback

by

Alessandra Cipani

Doctor of Philosophy, Graduate Program in Education
University of California, Riverside, June 2018
Dr. Cathleen Geraghty, Chairperson

This study implemented performance feedback with paraeducators to increase the treatment integrity of behavior interventions. Treatment integrity, also known as treatment fidelity, refers to the extent to which an intervention is implemented as intended. Currently, performance feedback is the most research supported method for increasing treatment integrity in schools (Fallon, Collier-Meek, Maggin, Sanetti, & Johnson, 2015). Stemming from the organizational psychology literature, performance feedback is a tailored method of ongoing consultation in which a consultant collects data on the integrity of intervention components, as well as a target behavior of the student. By presenting the implementation data alongside student outcomes, the consultee is made aware of the functional relationship between their behavior and that of their students (Mortenson & Witt, 1998). This study targeted paraeducators, as they are becoming more commonly utilized when intervening with students with challenging behaviors

(Giangreco & Broer, 2005). Although they are tasked with this responsibility, paraeducators often do not receive adequate behavioral training and can struggle to implement individualized behavior plans (Giangreco, Hurley, & Suter, 2009). The goal of performance feedback is to provide a short-term intervention to increase both the skill level and the performance of the consultee (paraeducator). The purpose of this study was to determine if there is a functional relationship between performance feedback and treatment integrity of comprehensive behavior intervention plans. Three outcome variables were studied: treatment integrity, student noncompliance, and student replacement behavior. Participants included four paraeducator student dyads. Performance feedback occurred once per week until the paraeducator reached 80% mastery across three occasions. Effect size analyses were used in addition to visual analyses. Results showed that a functional relationship between performance feedback and improved treatment integrity for all four participants. Student-level results included a small effect for noncompliance and no effect for replacement behavior. This study provides evidence for the use of performance feedback with paraeducators.

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Utilizing Paraeducators to Increase Treatment Integrity of Behavior Interventions Through the Use of Performance Feedback

Recent studies have reported that as many as 10% to 40% of young students with disabilities will also display challenging or problem behavior (Fox & Smith, 2007; National Longitudinal Transition Study 2, 2006; Powell et al., 2007). Severe problem behavior has also been noted as the most common reason students with disabilities are removed from their school setting (Reichle, 1990). Occurring in both general and special education settings, challenging student behavior can contribute to poor student-teacher relationships, teacher burnout and low academic engagement. For decades, researchers have hypothesized that behavior problems are closely tied to academic difficulties (Akey, 2006; McKinney et al., 1975; Sutherland et al., 2008). Although it is unclear whether that relationship is correlational or cyclical, problem behavior has been shown to inhibit academic engagement. Regardless of the origin, a common response to challenging behavior is to remove the student from the classroom as punishment. Unfortunately, the removal of a student can negatively reinforce the teacher, positively reinforce the student and result in a loss of instructional exposure. This negative reinforcement trap can exacerbate existing academic and behavioral deficits. This pattern may continue until the behavior becomes severe enough to warrant the attention of other school staff or administration and can result in prolonged removal from the learning environment.

Of the estimated percentage of students displaying behavior problems, approximately 5% of students need more intensive behavioral supports (e.g., individualized behavior intervention plans) (Sugair & Horner, 2006). Since challenging

behaviors do not occur in a vacuum, we must hypothesize the reason for their occurrence. By correctly identifying the function of the maladaptive behavior, we increase the likelihood of effectively producing positive changes (Sugai, Lewis-Palmer, & Hagan-Burke, 2000). Over 100 years of behavioral research has provided evidence for several theories related to behavior change. The governing philosophy behind behavior change states that, behavior occurs in response to an event or stimulus and is governed by the consequences that follow (Cooper, 1982).

Addressing Problem Behavior in Schools

In response to an increase in challenging behavior, federal legislation has followed suit in requiring positive behavioral interventions for students whose behavior impedes themselves or others from learning (IDEA, 2004). Ideally, these interventions stem from a functional behavioral assessment (FBA). An FBA is conducted after the student displays a level of behavior that is interfering with their ability to function in the classroom or access the learning environment (Sugai et al., 2000). In a school-setting, an FBA should be conducted by highly trained professionals, including school psychologists, behavior specialists, or contracted Board Certified Behavior Analysts (BCBAs) (Scott et al., 2005). The goal of an FBA is to identify patterns in behavior marked by setting events, antecedents and consequences (Cipani & Schock, 2010; Gresham, Watson, & Skinner, 2001). An FBA is completed by using direct observation tools, rating scales from multiple informants, and experimental analysis. From the results of an FBA, a behavior intervention plan (BIP) can be developed. Comprehensive BIPs contain both antecedent strategies and consequence strategies (O'Neill et al., 2014).

Antecedent strategies should occur proactively or before the behavior is most likely to occur. These strategies can include modifying tasks or activities, changing schedules or routines, or offering a choice of materials/tasks (Kern & Clemens, 2007). Consequence-based strategies occur after a child has engaged in the problem behavior and serve to guide the adult's reaction to the student's behavior. These strategies are historically more popular within educational settings and include reinforcement, planned ignoring, and punishment. Both school- and clinic-based research has indicated that an over-reliance on punishment can lead to an increase in problem behaviors (Bambara & Kern, 2005). Thankfully, the use of punishment-based strategies in schools is experiencing a downward trend (Kazdin, 2012). With that being said, it is crucial that a behavior plan contain several strategies to decrease problem behavior, as well as increase prosocial behaviors. To target the prosocial behaviors and inhibit an extinction burst, replacement behaviors should always be identified through the FBA process and written into the BIP (Witt, VanDerHeyden, & Gilbertson, 2004).

A functionally equivalent replacement behavior (FERB) is a socially appropriate behavior that is maintained by the same consequences as the problem or target behavior. By serving the same function as the target behavior, the FERB can be used to get the same need met in a more appropriate or socially acceptable way (Cooper, Heron, & Heward, 2007). Replacement behaviors are usually identified through completion of competing behaviors pathway chart via direct observation or assessment. Common replacement behaviors in the school setting include: utilizing a break card, asking for help/attention, or using a sensory item. Unfortunately, the research on replacement

behaviors in schools is very limited. This is especially troublesome, as replacement behaviors are frequently used to monitor progress. For example, when an Individualized Education Program (IEP) meeting is held, the team uses assessment data to determine the IEP goals. The objective behind IEP goals is to monitor the academic and social-emotional progress of the student. When setting and evaluating behavioral goals, the team will often use data on the replacement behavior to assess whether or not the intervention was successful (e.g., social skills, coping skills, successful transitions). As an IEP team, decisions are made as to who will implement the BIP, who will take the data on the student and who will support the direct service providers. The most successful plans are implemented across settings and service providers to promote generalization.

As the body of research around function-based or evidence-based interventions grows, the support to implement such interventions can be seen in state and federal education laws and legislation. After the renewal of the Individuals with Disabilities Education Improvement Act (IDEIA, 2004), local education agencies are now mandated by law to address problem behaviors by implementing evidence-based practices (EBP). The need for EBP and function-based interventions is widespread, occurring across grades and within both general and special education. The expectation is that school personnel are utilizing these interventions; however, the individuals responsible for the implementation often do not receive adequate training. To implement these strategies with fidelity, teachers and staff must acquire behavior management skills that may not be in their repertoire. Self-report data show that teachers and staff do not feel prepared to

handle extreme problem behaviors and are reporting low levels of self-efficacy regarding behavior management (Rimm-Kaufman & Sawyer, 2004).

Treatment Integrity in Schools

A potential side effect of inadequate training is low levels of treatment integrity. Current research suggests that the effectiveness of an EBP can be severely impacted, if it is not implemented with high fidelity or integrity (Walrath, 2006). A phenomenon known as the "Curious Double Standard" (Peterson, Homer, & Wonderlich, 1982), states that focusing on the dependent variable has led us to neglect the implementation of the independent variable. Intervention success is typically measured by student outcomes as the dependent variable. Inadequate assessment and implementation may result in faulty conclusions about the relationship between the independent variable and dependent variable. Shadish (2002) postulated that there are four types of experimental validity that allow researchers to draw conclusions: internal, external, construct, and statistical conclusion. Internal validity is the extent to which the change in the dependent variable can be attributed to a systematic change in the independent variable (e.g., is the intervention producing the change in student behavior?). External validity refers to the extent to which the causal relationship can be generalized (e.g., Are these results unique to this study?). Construct validity refers to interpretation or explanation of the causal relation between the independent and dependent variables. Statistical conclusion validity refers to the conclusions drawn about the effectiveness of the intervention from quantitative analysis. A threat to statistical conclusion validity is the variability in which the treatments are implemented, also known as treatment integrity. Increased variability

within the data can lead to a higher standard deviation and in turn a lower effect size when using single-case or single-subject designs. As previously stated, many factors contribute to student success but one that is not often measured is the extent to which the intervention is correctly being implemented (Noell, 1999). This is known as treatment fidelity or treatment integrity. More specifically applied to intervention research, it is the degree to which an independent variable is implemented as intended (Gresham, Gansle, & Noell, 1993).

Treatment integrity is imperative to Shadish's (2002) four proposed types of validity. For example, if a reported student outcome is positive but the intervention was not implemented with fidelity, can we still assume that the intervention was the cause of the improvement and not just natural growth or other extraneous variables? On the other hand, if student outcomes are not favorable, can we assume that the quality and application of the intervention was as intended? This situation leads to a host of problems including a lack of generalization and even a possible change in placement into special education or from special education into a more restrictive setting. Gresham, Gansle, and Noell (1993) reviewed studies published in the *Journal of Applied Behavior Analysis (*JABA) and found only 16% of studies published from 1980 to 1990 included data on treatment integrity. A more recent review of over 200 school-based intervention studies published between 1991 to 2005 in JABA revealed that only 30% included treatment integrity data (McIntyre, Gresham, DiGennaro, & Reed, 2007). Lastly, Sanetti, Gritter and Dobey (2011) reviewed over 200 intervention studies published across four school psychology journals and found that approximately half of the studies did not report

quantitative treatment integrity data. This phenomenon is seen in both research settings and when applied in practice. Gresham (1989) outlined several possible reasons on why a previously agreed upon or even mandated treatment plan is not being implemented as intended. They generally fall into two categories: variables related to intervention and variables related to the interventionist (Sanetti & Kratochwill, 2014). These can include: complexity of the plan, number of treatment agents, time required of them to implement, resources required and the perceived effectiveness of the plan. As previously mentioned, teachers and staff are not equipped or properly trained to implement behavioral interventions with high fidelity.

Paraeducators

As the push for mainstreaming and inclusion settings continue to gain strength, disability-related supports are more likely to be placed within general education classrooms (Giangreco, Hurley, & Suter, 2009). According to Brock and Carter (2013), 87% of special education paraeducators provide behavioral support in some capacity throughout the day. When hired, most paraeducators hold a high school diploma, and have little to no training in behavioral theory or application (Fisher & Pleasants, 2012). Although the demographics of paraeducators vary, a large percentage report this position as temporary or a stepping stone to another similar career. There is also a high rate of turnover for paraeducators due to burnout, poor management, and little opportunity to grow in employment (Giangreco, 2003). Within special education budgets, the vast majority of spending goes to staffing, with some districts allotting as much as 95% and seldom less than 70% of their entire budget (Levenson, 2012). Paraeducators are a cost-

effective solution to staffing issues such as adult-child ratios within the classroom. Results from Levenson's (2012) national study found that on average, paraprofessionals make up 19% of staff spending, the second largest category after special education teachers (59%). The other categories include: therapists (11%), psychologists (7%), and administration (3%).

Recent reports from the U.S. Department of Education state that there are more than 400,000 paraeducators currently working with students receiving special educations services. This estimate far exceeds the amount of special education teachers. The National Center for Educational Statistics has reported that paraeducators are employed in over 90% of U.S. public elementary and secondary schools (Wagner et al., 2006). Data also suggest that the presence of paraeducators has greatly increased over the past few decades. For example, the first National Longitudinal Study (1987–1991) reported approximately 56% of students with disabilities attend schools where paraeducators are utilized. In The National Longitudinal Transition Study 2 (Wagner, Newman, Cameto, Levine, & Marder, 2007), that number increased to 84%. Their increased presence is also seen in federal special education data that indicate that, as of 2006, there were nearly 357,000 special education paraeducators serving students with disabilities. As previously mentioned, almost half the states in the country currently have more special education paraeducators full-time equivalents than special educators. The most salient examples are seen in moderate-to-severe special education classrooms, where often several paraeducators are assigned to one classroom. This evidence supports the fact that paraeducators are key members of both self-contained and inclusion classrooms (Riggs &

Mueller, 2001).

An ongoing issue with the utilization of paraeducators is defining their role within the school setting. According to The Individuals With Disabilities Education Improvement Act of 2004 (IDEIA, 2004), trained paraeducators are allowed to ‘‘assist in the provision of special education’’ under the supervision of qualified professionals (Section 612 [a][14][B][iii]). Since paraeducators report varying levels of training, it often falls on the classroom teacher to assist in their training. According to federal law regarding paraeducators, their direct supervisors should be “qualified professionals such as a certified special education teacher” (U.S. Department of Education, 2005). Unfortunately, most special education teachers do not receive formal training in the oversight of paraeducators (Douglas, Chapin, & Nolan, 2016; Wallace, Shin, Bartholomay, & Stahl, 2001). The role of a paraeducator can greatly differ depending on the climate of the district, the needs of the students, and the setup of the classroom (Blalock, 1991). Their roles often include educational assistance, classroom management, and behavior support. For high need cases, paraeducators may be placed as one-on-one assistants or shadow-aides. Research suggests that paraeducators are being utilized outside their traditional role and may be asked to engage in roles for which they are not sufficiently trained (Downing, Ryndak, & Clark, 2000). These roles include but are not limited to: academic instruction, discipline, and decision-making in regard to the student’s day-to-day activities (Ashbaker, Dunn, & Morgan, 2010).

Paraeducators are tasked to provide a large part of direct services including implementing BIPs, taking data on goal progress and reporting to teachers, parents and

administration. Although paraeducators are integral members of the service delivery team, they are often the least qualified and lowest paid. As Brown and colleagues stated, “there is no strong conceptual or theoretical basis for assigning the least qualified, lowest paid, often inadequately supervised staff, namely paraeducators, to provide the bulk of instruction for students with the most complex characteristics” (Brown, Farrington, Ziegler, Knight, & Ross, 1999 p. 14). Reviews of the literature suggest that special education paraeducators are continually being asked to engage in additional roles that are not adequately trained or supervised to take on (Giangreco, Edelman, Broer, & Doyle, 2001). A 5-year study of 26 schools attempting to the break overreliance of paraeducators reported that hiring special education paraeducators was seen as a “quick fix” to larger systematic or managerial issues (Giangreco & Broer, 2005). They also reported utilizing paraeducators as the ‘‘primary mechanism to support students with disabilities in the general education environment’’.

In another survey study with over 150 respondents, 70% of special education paraeducators agreed or strongly agreed that they are forced to make both curricular and instructional decisions without direct oversight from the teacher who serves as their direct supervisor (Giangreco & Broer, 2005). A model for best practice for paraeducators suggests the instruction delivered by paraeducators should be: (a) supplemental, rather than primary or exclusive; (b) planned by a qualified professional so that it does not require paraeducators to plan lessons, determine accommodations, or make other pedagogical decisions; (c) based on explicit and intensive training in research-based practices; and (d) followed by ongoing supervision to ensure implementation fidelity

(Causton-Theoharis, Giangreco, Doyle, & Vadasy, 2007).

Although the presence of paraeducators is tied to the insurgence of mainstreaming, the overreliance of 1:1 paraeducators does not always equate a Free Appropriate Public Education (FAPE) (Malmgren, & Causton-Theoharis, 2006). Without comprehensive plans for fading or support, the presence of these paraeducators can be restrictive in nature (Etscheidt, 2005). Unfortunately, there are limited data on the use of 1:1 paraeducators for special education students. The push for one-on-one paraeducators is advocated by parents, professionals and other educational stakeholders (Chopra & French, 2004; Gessler-Werts, Harris, Tillery, & Roark, 2004, Suter & Giangreco, 2009). The model is usually adopted by full inclusion schools, which may lead to an overreliance on paraeducators (Giangreco, Edelman, Broer, & Doyle, 2001). In a study of 103 students with disabilities assigned to 1:1 paraeducator supports, 82% were described to have moderate to severe behavior problems (Suter & Giangreco, 2009). In that sample, male students accounted for the majority of those receiving 1:1 support (77%).

In a survey study by Walker (2016), close to 500 paraeducators rated their own skill level and their need for training on ten domains of function-based intervention. The sample included paraeducators who are currently working within special education settings, serving students with disabilities. The respondents ranged in age from 22 to 77 years old and were predominately female (93%). Of those who reported educational background, a majority (363, 80%) had some level of college education. The remaining respondents had attained: bachelor's degree (98, 22%), 2-year degree (76, 17%), and graduate-level education or degree (56, 12%). Fewer respondents reported their highest

level of education as being a high school diploma or certificate of high school equivalency (80, 18%) as well as other forms of education (e.g., paraeducator training, special education courses; 10, 2%). Paraeducators then rated their skill level as none, low, moderate, or high across 10 domains of function-based intervention. Overall, paraeducators skill level fell between a low to moderate range across each domain (*M* = 2.63, range = 2.43–2.93). The results for training needs were similar, with slightly more than half of the respondents reporting moderate to high level of training need across the 10 domains. They also identified their preferred training delivery. Overall, paraeducators preferred the following methods over others: (a) cooperative work groups at school site, (b) brief workshops, (c) web-based courses/activities, and (d) in-classroom coaching over the course of several days. The respondents also identified areas of training needed. The top three included behavioral intervention, individualized behavioral intervention, and training specific to disability categories (e.g., autism, emotional and behavioral disorder). Other notable findings were an expressed interest in training for high priority and dangerous behaviors such as physical aggression, self-injurious behavior, and property destruction (e.g., crisis management training, physical restraint procedures; 25, 9%), and documentation of behavior (e.g., observing, recording, reporting behavior; 13, 5%).

Professional Development

Traditional models of professional development for educationally related professionals such as teachers, administration, and support staff usually consist of a required one-day meeting or training. Professional development is utilized across several domains, including academic trainings, classroom management and behavior support.

Despite its popularity and the required attendance, professional development has shown little effectiveness in long-term gains and behavior change (Kinkead, 2007). Reviews of professional development frequently highlight flaws and ineffectiveness of the delivery (Kennedy, 2005; Wang et al., 1999). Professional development for educators is usually determined by district policy and can occurs over the summer or a few times throughout the year. When the formal training has concluded, ongoing support is not typically offered. Post-test data have shown that professional development leads to an increase in general knowledge but follow up reports show little to no behavior change (Kinkead, 2007). Driscoll and colleagues (2010) reported that educators were 10 times more likely to implement an intervention with fidelity when given some type of additional or ongoing support. This same trend is seen with paraeducators as well. Traditional professional development targeting skills for working with students with disabilities has been unsuccessful (Brock & Carter, 2015). Therefore, it is critical to extend more support to those who are providing direct services to students exhibiting high levels of maladaptive behaviors (Erchul & Martens, 2010). There is little to research on the amount or quality of professional development that paraeducators receive, or are required to obtain (Stockall, 2014). Coupled with unclear roles and inadequate supervision, the need for ongoing skill development is critical.

Behavioral Consultation

Behavioral consultation is frequently utilized within educational settings as a problem solving framework (Erchul & Martens, 2010). The traditional roles in behavioral consultation include the consultant (usually an expert in the area), a consultee, and a

client. In education, the consultee is most commonly the teacher, who is looking to improve the behavior of their student, the client (Sheridan, Welch, & Orme, 1996). The consultant is typically a highly trained employee at the school such as a school psychologist or behavior specialist. However, in research settings, the consultant is often the primary investigator.

Of the school-based consultation models, the most widely used and empirically supported is the behavioral consultation (BC) model (Wilkinson, 2006). The BC model traditionally consists of four parts: (a) problem identification, (b) problem analysis, (c) treatment implementation, and (d) treatment evaluation (Kratochwill & Bergan, 1990). Similar to professional development, BC takes place over a set period of time or until the four stages are completed. However, it is seen as more preferable, as it can be adapted to specific problem behaviors. Although research has shown that BC is efficacious (Sheridan et al., 1996), teachers and staff still report low levels of treatment fidelity within 7-10 days after beginning an intervention (Mortenson & Witt, 1998) Consequently, researchers have attempted to identify effective and time-efficient strategies to ensure the ongoing integrity of school-based interventions (Noell et al., 2002; Sanetti & Kratochwill, 2014).

Improving Treatment Integrity Through Performance Feedback

Performance feedback is a short-term intervention that can be used to monitor the behavior of a consultee and client, as well as provide objective and specific feedback regarding plan implementation (Frank & Kratochwill, 2008). Stemming from the organizational psychology literature, performance feedback is a tailored method of

ongoing consultation in which a consultant collects data on the components of an intervention. Recently, research has examined the addition of a secondary student-level target behavior. By presenting the implementation data alongside student outcomes, the consultee is made aware of the functional relationship between their behavior and their student's behavior (Mortenson & Witt, 1998). Performance feedback is utilized in traditional behavioral consultation during the implementation phase. Although treatment integrity is still relevant during other phases of BC that include the Problem Identification Interview (PII) and Problem Analysis Interview (PAI), it is assumed that those have been completed correctly when implementation begins. Performance feedback is specifically designed to improve the implementation phase of behavioral consultation. Ideally, performance feedback would occur after the target behavior has been identified and operationally defined through some type of functional assessment. The literature on performance feedback has shown a variety of different types, including verbal, written, or visual (graphical). Performance feedback can occur immediately after an observation or occur at a daily or weekly rate. Meetings typically happen in person but can be remote via email or video chatting. Once performance feedback has begun, it can be tailored to fit the needs of the consultant and more importantly, the consultee. Reports indicate that performance feedback can be completed within three to five minutes, and is an acceptable option for teachers.

Currently, performance feedback is the most research-supported method for increasing treatment integrity in schools (Fallon et al., 2015). Several meta-analyses have been conducted to examine the effectiveness of performance feedback to increase

treatment integrity. Solomon, Klein, and Politylo (2012) reviewed 36 single-case studies that employed performance feedback to improve treatment integrity for various academic and behavioral interventions as well as teacher skills. The authors found moderate effect sizes across the combined sample that ranged from preschool through high school in both general education and special education settings. It was found to be more effective for academic interventions than behavioral interventions, which may be due to measurement error from the original studies. Immediate feedback had larger effects than weekly feedback and special education settings reported larger effect sizes than general education settings.

Fallon and colleagues (2015) applied the What Works Clearinghouse (WWC) guidelines (Kratochwill et al., 2010) to the body of performance feedback research. Of the 111 studies found in the literature search, 47 studies were included in the review. Of those, only 48% of studies met design standards, while 27% met design standards with reservation. The systematic review found that most often, PF was given in person, using visual (written or graphic) feedback. Currently literature and systematic reviews have concluded that performance feedback is an evidence-based intervention that can be used across settings, populations, and context (Gilbertson, Witt, Singletary, & Vanderheyden, 2007).

Performance Feedback with Behavior Interventions

Evidence for the use of performance feedback with behavioral interventions has been growing. In particular, by focusing on a single behavior such as behavior specific praise statements (BSPS), researchers have found great improvement in implementations.

A review of literature by Cavanaugh (2013) provided support for the use of performance feedback in increasing teachers' use of BSPS from Pre-K to high school in both general education and special education. Included in those studies was Duchaine, Jolivette, and Fredrick (2011), who utilized performance feedback in a high school inclusion classroom. The results showed an increase in the target behavior (BSPS) as well as in on-task intervals. A similar study by Hawkins and Heflin (2010) combined visual performance feedback and video self-monitoring to increase the use of BSPS in a high school classroom for students with emotional and behavioral disorders. The multiple-baseline study found that all teachers increased their frequency of BSPS but only one of three teachers continued after the intervention had concluded. The use of visual performance feedback has been shown to produce great effects on BSPS statements (Mesa Lewis-Palmer, & Reinke, 2005; Reinke, Lewis-Palmer, & Martin, 2007). The increase in BSPS has also has also produced distal effects such as a decrease in disruptive behaviors (Mesa Lewis-Palmer, & Reinke, 2005) as well as the teachers use of praise for non-target students (Reinke, Lewis-Palmer, & Martin, 2007).

Studies that implemented performance feedback on more complex behavior plans also found positive effects. A study by Codding, Feinberg, Dunn, and Pace (2005) provided support for immediate performance feedback for behavior support plans with various antecedent and consequence strategies. Performance feedback increased the treatment integrity of antecedent components for 4 of 5 teachers and consequence components for all 5 teachers. The teachers who participated rated the intervention favorably in terms of purpose, procedures, and outcome via a social validity rating scale.

A follow up study looking at effects of observer reactivity by using a multiple baseline alternating conditions for observer-present and observer-absent conditions on teachers' implementation of a class-wide behavior plan (Codding, Livanis, Pace, & Vaca, 2008). The study found no differences between the conditions and an increase in treatment integrity across all teachers. This study is unique in that it plans to address the assumption that the consultee's behavior is being changed by the consultant presence. Another unique study implemented a meeting cancellation contingency also known as avoidance contingency (DiGennaro, Kleinmann, & Hanley, 2007). When the consultee reached a criterion of implementation on a functional based class-wide behavior plan, their meeting was canceled. The study produced high levels of treatment integrity, which correlated with lower levels of student problem behaviors for 75% of the sample. Teachers rated the feedback procedures as highly acceptable. Minor, Dubard, and Luiselli (2014) implemented performance feedback with problem solving consultation and found mixed results. Treatment integrity did not improve for two of the three teacher-student dyads. However, by conclusion of the study, all of the teachers had consistently fewer BSP implementation errors with their students.

Sanetti, Fallon, and Collier-Meek (2013) utilized school personnel to serve as the consultant when providing performance feedback. Their results show an immediate but brief increase in treatment integrity for a class-wide behavior plan. The consultants provided the intervention on a response-dependent basis, which was chosen to accommodate the teachers as well as the school personnel. Another study by Sanetti and colleagues (2007) compared the effects of graphic and verbal performance feedback on

behavior support plan implementation. Results showed greater effects for the combination of graphic and verbal performance feedback to increase both treatment integrity and possible increase in prosocial behaviors.

The literature base of performance feedback is vast and growing. Studies not mentioned include those targeting academics, social skills, and teaching strategies. It is a viable, effective intervention that can be tailored for the needs of the consultant, consultee, and client. Although the use performance feedback has been evidenced time and time again, it is rarely utilized with paraeducators.

Utilizing Paraeducators in Service Delivery

A small number of studies have found the use of paraeducators to support students' academic skills (Lane, Fletcher, Carter, Dejud, & Delorenzo, 2007) and facilitate social interactions (Causton-Theoharis & Malmgren, 2005). Less is known about their ability to successfully and accurately implement behavioral interventions and its relationship to treatment integrity. A study by Walker and Snell (2016) evaluated the effects of professional development via workshops with the addition of coaching to increase the implementation of function-based interventions. The study participants included three dyads of paraeducators and students with autism spectrum disorder and/or intellectual disability. In this study, the coach was the primary researcher and a Special Education doctoral student at the time of the intervention. The coaching occurred weekly over a 3- to 8-week period and was supervisory (e.g., occurred directly after the targeted routine) as opposed to side-by-side or in vivo coaching. Results found that the before the intervention, implemented ranged from 0-25% and after the intervention, it ranged from

38-100% with an average of 93% across all three participants. Alongside treatment integrity data, disruptive behavior was also measured as an outcome variable. Data for all three students show that challenging behavior (self-injurious behavior, physical aggression, screaming, etc.) decreased to lower levels during intervention phase as compared with baseline.

In a study by Scheeler, Morano, and Lee (2016), immediate feedback via bug-in-ear was implemented in hopes of increasing behavior specific praise statements. The study employed a multiple baseline with two special education teachers providing the feedback and four paraeducators working in autism-support classrooms. The special education teachers were utilized as the consultants and provided the feedback. During the feedback sessions, the teacher would provide specific praise or prompt for a different behavior such as “say good counting”. The paraeducator did not receive any written or delayed feedback during the intervention. When the intervention phase began, the total amount of behavior specific praise statements increased for all four participants and remained at high levels even when the intervention was faded. All participants rated the intervention as beneficial.

Another study by Bessette and Wills (2007) looked at utilizing paraeducators to conduct functional analysis and implement interventions. The participants completed a 3-unit training package on the functional assessment interview (FAI), direct observations, functional-analysis procedures, functional-analysis conditions training, functional-analysis sessions, and function-based intervention development and training. The paraeducator outcome measures included correct and incorrect responses during the

functional analysis and intervention. The student variables included “inappropriate verbalizations” and “physical aggression”, which were operationally defined to be observable. Overall, the results demonstrated that the paraeducators were able to successfully perform the three conditioning of functional analysis with high fidelity. The interventions were informed by the functional analysis were also implemented with fidelity and led to positive student outcomes.

Purpose of the Study

The body of research surrounding performance feedback is rapidly growing. The intervention’s application spans across domains and is currently being implemented with academics, behavior, and classroom management. This study will expand its reach by targeting paraeducators. Although research surrounding paraeducators has outlined their presence and impact in a classroom setting (White, 1984), little is known about the extent to which paraeducators can benefit from performance feedback. By drawing on the limitations of previous research, the primary researcher focused on a direct service provider that is often not included in team decision-making. While traditional performance feedback research focuses on treatment integrity as the main dependent variable, this study will examine additional, socially valid outcomes at the student level as well. The target problem behavior for this study will be noncompliance. Academically defined as “failure or refusal to comply” or “failure to act in accordance with a directive or command,” noncompliant behavior is often a precursor of other behaviors and a starting point for behavioral escalation cycles. Noncompliance can be nonverbal (task refusal) or verbal (stating “no”). For this study, noncompliance does not include physical

behaviors that may accompany (e.g., hitting, swatting papers). Another unique aspect of the current study is the addition of a secondary student-level dependent variable. By measuring replacement behavior frequency, this study adds a new look into the treatment integrity of behavior plans. As previously mentioned, the measurement of replacement behavior is an important and sometimes decisive factor when addressing IEP goals and school-based student-outcomes. Although several performance feedback studies examined academic engagement as a student-level, replacement behavior as identified in an IEP and/or comprehensive BIP, has not been studied.

Research Questions:

RQ1: To what extent is there a functional relationship between the implementation of performance feedback and paraeducators' treatment integrity of a behavior intervention plan (BIP)?

RQ2: To what extent is there a functional relationship between the implementation of performance feedback and a decrease in noncompliance?

RQ3: To what extent is there a functional relationship between the implementation of performance feedback and an increase in replacement behaviors identified in the BIP?

Method

Participants

Participants were selected from an urban Title 1 elementary school in Southern California serving grades K-5 with approximately 490 total students enrolled. Demographic data from the 2016-2017 school year were as follows: Hispanic or Latino, 78.4%, White, not Hispanic, 9.7%, African American, 3.8%, Asian, 2.7%, Filipino, 3.4%,

Pacific Islander and American Indian or Alaska Native, less than 1% (CDE, 2018). English Language Learners represented 29.3% of students. The percentage of students receiving free and reduced-price lunch was 74.4%. The school district was engaged in a two-year relationship with the university and had several graduate student researchers working within the schools. As part of that relationship, university professors provided professional development to the special education staff, including training of behavioral principles. The primary researcher was employed as a school psychologist intern during the duration of the study.

Paraeducator participants were drawn from all available paraeducators that met the following inclusion criteria: (a) part-time or full-time employment, (b) working with students receiving special education, and (c) having behavior intervention implementation as a responsibility. After all available paraeducators were identified, five were chosen at random from a sample of convenience. Of the five paraeducators who consented to the study, four completed the study, as one was not able to participate due to medical leave (see Appendix A). The attrition rate for this study was 20% (1 of 5 dyads). Paraeducator demographic data, including age, educational attainment, years of experience, amount of professional development and amount of behavior-specific training was collected using a survey (See Appendix B). See Table 1 for all demographic information. Questions regarding familiarity with behavior intervention implementation and perceptions of their skill level in addressing behavior concerns were also included in the survey (see Table 2)

The paraeducators were dispersed across three self-contained Special Day Class

(SDC) rooms. When examining the continuum of special education services, public school systems begin with the least restrictive environment and then move to more restrictive placements (Taylor, 2004). Usually that occurs within the following pattern: general education classroom with push-in support, general education classroom with pull-out support or a Resource Specialist Program (RSP) and finally, a self-contained classroom or SDC. From there, classes are further dichotomized between Mild/Moderate and Moderate/Severe. At the participating district, the Mild/Moderate classrooms serve as the bridge back into the general education curriculum, whereas the Moderate/Severe classroom follows a life skills curriculum and targets students eligible under Intellectual Disability (ID) and Characteristics Often Associated with Autism (AUT). Students enrolled in the Mild/Moderate class were more likely to qualify under eligibilities including Specific Learning Disabilities (SLD), Speech/Language Impairment (SLI) and higher functioning AUT.

Classroom 1. Two of the four paraeducators (dyads B and D) worked exclusively in Classroom 1, which was a Mild/Moderate grade 3-5 grade classroom. The special education teacher was a Caucasian woman with 13 years of teaching experience and two years experience as a credentialed special education teacher. There were nine students enrolled in the class, with one credentialed teacher and four paraeducators, including the two in the current study. The student-adult ratio was approximately 2:1; however, the responsibilities of the 1:1 paraeducator differ from the classroom aides. Their primary role is to assist their student, while other responsibilities are ancillary. Additionally, of the nine students, four had comprehensive BIPs as part of their IEPs.

Classroom 2. One of the four paraeducators (dyad C) worked in classroom 2, as well as in a general education classroom while her student participated in mainstreaming. The SDC was a Mild/Moderate Kindergarten- grade 2 classroom with 11 students and four adults (one credentialed teacher, two classroom aides, one 1:1 paraeducator). Two of the 11 students have comprehensive BIPs in their IEPs. The special education teacher was also a Caucasian female, who held dual master's degree/special education credentials. She had been teaching in special education for over 10 years. For the SDC classroom, the student-adult ratio is 3:1, whereas the less restrictive general education classroom has a total of 21 students, one credentialed teacher and one half-day classroom helper. According to the California Department of Education, the average number of students in a 1st grade classroom was 23.1 for the 2016/2017 school-year.

Classroom 3. One paraeducator (dyad A) worked in the only Moderate/Severe classroom at the school, which supported students from Kindergarten through 5th grade. There were a total of eight students enrolled in the third classroom and approximately five to six adults working in the classroom throughout the day. The classroom teacher was a Caucasian male who was currently on internship through his special education credential program. The classroom had two 1:1 paraeducators, one full day classroom aide, and two morning aides. When all eight students are present (8:30am-2:20pm), the student-adult ratio is 2:1.5. After 2:20pm, only six students remain and the student-adult ratio is approximately the same. Of the eight students, five of them had comprehensive BIPs as part of their IEPs.

The students in the dyad were eligible for special education under the following

categories: Intellectual Disability (one student), Characteristics Often Associated with Autism (three students). These eligibility categories are similar to other studies previously reviewed (Digennaro. et al., 2007). All students had a behavior intervention plan (BIP) and a 1:1 paraeducator listed as "individual intensive services" on their individualized education program (IEP). In the current district, when the request for a 1:1 paraeducator is made by the team or parent, an assessment must be completed. A Temporary Special Needs Assistant (TSNA) assessment is a comprehensive multi-method assessment that determines if the student's current level of impairment warrants the support of an individual staff-member. A school psychologist within the district completes the TSNA assessment and provides a recommendation for services to the IEP team, where the final decision is made. If the recommendation is made to provide a 1:1 paraeducator, the school psychologist also presents a TSNA fading or independence plan. As previously stated, the presence of a 1:1 paraeducator is considered a more restrictive environment, therefore, their roles are designed to be temporary in nature. The need of support is also reflected in the TSNA service-minutes-per-day recommendation, which can vary across students. In this study, three of the paraeducators were "full-day" or full-time employees, and one was part-time (dyad D). The recommendation for the student in dyad D aligned with a "half-day" aide, whereas the three other students required all-day support. One student was mainstreamed for two subjects (Math and English Language Arts), which translates to approximately two hours per day in a general education classroom. The paraeducator was present during mainstreaming. All students participated in general education recess, lunch, art, and physical education. The final sample was four

paraeducator-student dyads for a total of eight individuals. See Table 3 for student demographic information.

Design

The study implemented a multiple baseline single case design. Single case design is a well-established approach for evaluating evidence-based practices in education, behavior analysis and school psychology (Horner et al., 2005). Single case design uses an individual "case" as the unit of data analysis (Kratochwill et al., 2010). This case could be represented as a single participant, dyad, or classroom. Each case serves as its own control subject for comparison eliminating the need for randomization, which is needed when employing a group design (Horner et al., 2005). Multiple baseline designs provide a means for collecting data from multiple subjects in a single-case experimental design (Kennedy, 2005). The multiple baseline design is the design of choice when it is not possible for subjects to return to original baseline (Kazdin, 1982). The order in which the participants received the intervention occurred at random.

Procedure

After receiving approval from the university's Institutional Review Board (IRB HS 17-200) and the participating school district, the primary researcher identified paraeducators previously described. Consent was gained from the paraeducator, classroom teacher, and student's parent. Student assent was also collected verbally. See Appendices C, D, and E for consent and assent forms. A treatment integrity checklist was created for each of the original five BIPs using operational definitions of the plan components. Each statement that included an action (e.g., prompt, remind, clearly state)

on the BIP was transferred onto the checklist as its own component. For this study, the primary researcher did not modify the BIPs, but instead used the current BIPs that had been in place for the 2017/2018 school-year. The treatment checklist was then reviewed by a fellow doctoral student for clarity, no modifications were made. An initial one-time training was held for all participating paraeducators by the primary researcher. It was approximately 20 minutes long and occurred in pairs, which was more suitable for their schedules. Attendance to the training was not mandatory to participate within the study, however; all four paraeducators agreed to attend. During the training, they shared anecdotally that they have received more training in their current district than offered in other districts, but do not receive any type of ongoing structured support. The training addressed the common components of the BIPs, including noncontingent reinforcement, priming and first/then statements. During the training, an unanticipated skill deficit was found in the area of behavior recording. The paraeducators shared the behavior recording forms given to them to track the behavior of their students (Antecedent-Behavior-Consequence form); however, they did not understand how to use the forms and asked that the data collection sheets used in the training be provided to them for clarity. The primary researcher provided new forms for IEP goal progress monitoring and taught the paraeducators how to use them (see Appendix F).

The behavior recording form utilized frequency count for both noncompliance, as well as replacement behavior. By using time-intervals on the form, both the primary researcher and the paraeducator could easily track when the behavior was more likely to occur. For the remainder of the study, both the primary researcher as well as the

paraeducator collected student-level data (noncompliance and replacement behavior in frequency). In the current setting (special education SDC) progress monitoring on IEP behavior goals is within the general job duties associated with 1:1 paraeducators. However, it is important to note that only the researcher-collected data were utilized in the analysis. Interobserver agreement (IOA) for observations when both the primary researcher and the paraeducator collected data can be found in the results section. IOA was calculated by dividing the number of intervals where the paraeducator and the primary researcher found agreement by the total number of applicable intervals. For this study, there were 40 total intervals (20 for noncompliance and 20 for replacement behavior) where both the primary researcher and the paraeducator were taking data simultaneously.

During the baseline phase of this study, data were collected on the treatment integrity of the BIP via classroom observation during instruction. The data collection occurred approximately three times per week at varying times for approximately 30 minutes per observation (28-33 minute range). Student data were also taken, including the frequency of noncompliant behavior as well as the frequency of the replacement behavior identified on the BIP. For this study, replacement behavior included the following: ask for a break (dyads B & C), ask for a break/sensory break (dyad A), and attempt work independently (dyad D). After a stable baseline (no evidence of a downward or upward trend) was established, the intervention began. The performance feedback sessions were held during non-instructional time and lasted on average 6.4 minutes (range 4-11 minutes). Performance feedback occurred individually, with the

primary research and one paraeducator per session. When feasible, performance feedback was held on a Thursday or Friday after the primary researcher had conducted three observations. Paraeducators were asked to meet during a time that was contracted (not during break/lunch), but would be suitable with the classroom schedule and approved by classroom teacher (art, PE, social skills). When the performance feedback session needed to be rescheduled due to absence or other circumstances, a session was scheduled as soon as possible via email or in person. The intervention took place in the office of the primary researcher, in the same building as the special education classrooms. During the session, graphed treatment integrity was presented alongside student outcome data. Printed copies were given to the paraeducator, but a laptop computer was utilized as well. Specific praise was given for components implemented with high fidelity. Any roadblocks that were identified in regard to low fidelity were addressed. As previously determined, performance feedback would stop when the paraeducators have reached at least 80% treatment integrity across one week or three observations (DiGennaro, Kleinmann, & Hanley, 2007). The study ran for approximately eight weeks, with a total of 14 performance feedback sessions occurring (three-to-five meetings per paraeducator). A procedural checklist was completed by the primary researcher after every performance feedback session.

Dependent Variables

The dependent variables for this study included treatment integrity, which was collected as both treatment adherence and treatment quality. Student outcome data were also utilized as dependent variables and included the frequency of noncompliant behavior

as well as the frequency of the replacement behavior identified in BIP. Noncompliance is operationally defined as the verbal or nonverbal refusal of a presented task, command, or direction (Cooper, et al., 2007).

Dependent on the identified replacement behavior in the BIP, the method of data collection was chosen to best fit the operational definition. For example, if the behavior has a distinct beginning and end, it can be counted through frequency or event recording (e.g., asking for a break). A frequency measure should be used when the length of observation time can be consistent from day to day (Cooper, et al., 2007). A rate measure should be used if the length of observation time varies from day to day (e.g., 30 minutes on Monday, 120 minutes on Tuesday). For other complex and long-lasting behaviors duration recording should be utilized. Duration recording is utilized to determine how long a student engages in a specified behavior. This type of data collection is appropriate for behaviors that have a distinct beginning and ending or for those that occur at very high rates (e.g., self-stimulatory behavior). All replacement behaviors were measured in frequency. Replacement behavior was chosen as a second outcome variable because of its salience within IEP meetings, and its use to monitor progress of the student's behavior and the efficacy of the behavior plan. By identifying socially relevant replacement behavior, we are ensuring that the comprehensive BIPs are both ethical and legally defensible (Bailey & Burch, 2016; Killu, Weber, Derby, & Barretto, 2006).

Measures

Treatment Integrity Datasheet. The treatment integrity data sheet was based on a sample from the Planning Realistic Implementation and Maintenance by Educators

(PRIME) manual by Sanetti, Kratochwill, Collier-Meek, and Long (2014), as well as the Codding, Feinberg, Dunn, and Pace (2008) treatment integrity checklist. Each data sheet corresponded with the student's individualized BIP. The plans had already been in place and consisted of individualized multicomponent interventions that prescribed both antecedent and consequence procedures. Paraeducators were expected to implement the components under specific conditions (e.g., activities, times of day, and contingent on student behaviors). Each plan targeted a decrease in noncompliance, as well as an increase in a replacement behavior (e.g. will present break card). The integrity data sheet included the type of procedure (i.e., antecedent or consequence), an operational definition of each component, observer ratings of both treatment adherence and treatment quality. This study compiled data on both treatment adherence and treatment quality. Sanetti and colleagues (2014) defined adherence as the degree to which intervention components are implemented as written, while quality is defined as how well said component was implemented. Treatment adherence is calculated by dividing the paraeducator's "score" by the total number applicable for that observation. Furthermore, each step is rating using the following: 3 = Complete, 2 = Substantial, 1 = Limited, 0 = None. Sanetti and colleagues (2014) suggest the following operational definitions: Complete = all aspects completed (100%), Substantial = More than half of aspects completed (51-99%), Limited = Less than half of aspects completed (50%-1%), None = No aspects completed (0%). At the end of an observation, if the paraeducator scored 10/15, their treatment adherence score would be 67%. Treatment quality also used the same numerical scoring (3 = Excellent, 2 = Good, 1 = Fair, 0 = Poor). If the treatment adherence is scored a "0" the

observer does not fill out of the treatment quality portion. The PRIME manual recommends the following to distinguish between quality ratings: Excellent = Step implemented skillfully (appropriate interactions and specificity, appropriately paced, competently implemented), Good = Components implemented adequately but in a less skillful manner, Fair = Step implemented poorly in a manner that is inadequate or flawed, Poor = Step implemented poorly, with none of indicators under excellent (appropriate interactions and specificity, appropriately paced, competently implemented) (see Appendix G). For this study, only the treatment adherence scores were used in the multiple baseline analysis.

Behavior Intervention Plan Quality Evaluation. In addition, each behavior intervention plan was rated using the Behavior Intervention Plan Quality Evaluation (BIPQE; Browning-Wright, 2009). The original BIPQE has an internal consistency of .82, obtained using Cronbach's alpha, which indicates adequate consistency across items (Cook et al., 2012). Although the BIPQE cannot confirm whether the function was appropriately identified, it can serve as a screening tool for the behavior plans. The score on the BIPQE did not play a part in the data collection or analysis. The BIPQE has 12 components, with a 0, 1, 2 scoring system. Each numerical score (0-2) correlates with a heavily detailed operational definition for each component. The total score for the BIPQE is 24, if a behavior plan does score at least 18, it will not be used (see Appendix H). All BIPs met the minimum requirements to be included in the study. To ensure inter-rater reliability (IRR), all four BIPs were scored by another school psychology graduate student. IRR fell at 68% with Cohen's Kappa at .47 on the total score (range of 0-24).

Further analysis of IRR found that raters were within consistently within one point of each other across the majority (92%) of the 12 sections of the BIPQE.

Social Validity. Social validity is the extent to which the procedure is seen as socially acceptable and the outcome as socially significant (Wolf, 1978). To assess for the social validity of the study, all adult participants will be asked to complete an adapted version of the Intervention Rating Profile (IRP-15; Martens, Witt, Elliott, & Darveaux, 1985) (see appendix I). In the original study on general treatment acceptability, Martens and colleagues found .98 reliability using Cronbach's alpha. In a principal components factor analysis, the IRP-15 yielded one primary factor with item loadings rating from .82 to .95 (Martens et al., 1985). The possible score range is 15-90, with higher scores indicating higher acceptability.

Inter-rater Reliability. To measure reliability of direct observation data inter-rater agreement was collected in all phases on at least 20% of all sessions (Kratochwill et al., 2010). Inter-rater agreement was calculated using Cohen's kappa coefficient as it corrects for chance (Hintze, 2005). Guidelines by Hartmann, Barrios, and Wood (2004) suggest a minimum value of at least .60 when measured by Cohen's kappa. Raters participated in a one-time training to discuss the coding procedures including operational definitions of the behaviors and the components of the BSP.

During the baseline and treatment phases, inter-rater agreement was calculated on both the treatment integrity recording, as well as the behavior recording between the primary researcher and the paraeducator. In addition, the consultant providing the performance feedback completed a fidelity checklist after session to determine if the

procedures of the independent variable (performance feedback) were implemented as designed (see Appendix J).

Analysis

To demonstrate a functional relationship between an independent variable and a dependent variable, three instances of an intervention effect must be documented. This is done through examining the level, trend and variability within each phase, as well as the overlap, consistency of data points across phases and the immediacy of the effect (Horner et al., 2005; Kratochwill et al., 2010). Visual analysis is the traditional approach of assessing whether a functional relationship has been established both between and across phases. Kratochwill and colleagues (2010) suggested the following steps to examining within and between phase patterns. First, decide if there is a predictable baseline pattern of data by using level, trend, and variability. Level is the mean score for the data within a phase. Trend is the slope line and variability refers to the range or standard deviation. Next, compare the between phase change by using overlap, immediacy of effect and consistency. Finally, evaluate all data points to determine if there are at least three demonstrations of an effect.

Since visual analysis is not sufficient, the non-overlap effect size, percentage of all non-overlapping data (PAND), was also reported. Although all effect size estimates for single case designs are flawed, PAND was chosen based on its ability to be converted into a Pearson Phi (Φ) coefficient, a parametric effect size. PAND takes all data points into account and is preferred by some over non-overlapping data (PND) and percentage of the median (PEM) (Parker, Hagan-Burke, & Vannest, 2007). Limitations to PAND

include its insensitivity to outliers, and the fact that is only takes the highest or lowest baseline data into comparison. PAND is calculated by taking the number of overlapping intervention and baseline points divided by the total number of data points and then subtracted from 100. PAND can be converted to Pearson Phi (Φ) coefficient. The Phi Coefficient is a statistic used to measure the strength of association between two nominal variables, and it represented as 0 to 1. Values closer to 0 indicate a weak association between the variables while values closer to 1 indicate a strong association. Phi is calculated using a 2x2 table with the data where, after eliminating the overlapping points between baseline and intervention phases, two ratios are created (Parker et al., 2007). The two ratios are: (a) half of all removed baseline data points divided by the remaining (lower) data points, and (b) the remainder (higher) of intervention data divided by one half of all removed data points. The following equation is applied (Parker et al, 2007):

$$\Phi = [a/(a+c)-[b/(b+d)]$$

From there, an effect size can be analyzed. According to Cohen (1988), 0.2 is considered a small

effect, 0.5 medium, and 0.8 is a large effect (Parker et al., 2007).

This study aimed to meet the standards provided by What Works Clearinghouse regarding single case design studies. Designs that *Meet Evidence Standards* must possess several characteristics regarding the procedures of the intervention. First, the independent variable (i.e, the intervention) must be systematically manipulated, with the researcher determining when and how the independent variable conditions change. Regarding the dependent variable, each outcome must be measured systematically over time by more

than one assessor. The primary researcher must collect inter-assessor agreement in each phase and on at least 20% percent of the data points in each condition (e.g., baseline, intervention) and the inter-assessor agreement must meet minimal thresholds. For a multiple baseline design to *Meet Standards*, it must have a minimum of 6 phases with at least 5 data points per phase. To *Meet Standards with Reservations*, a multiple baseline design must have a minimum of 6 phases with at least 3 data points per phase. There also needs to be evidence of a relation between an independent variable and an outcome variable. To *Provide Strong Evidence*, A WWC reviewer must visually analyze the data by documenting the consistency of level, trend, and variability within each phase, documenting the immediacy of the effect, the proportion of overlap, the consistency of the data across phases in order to demonstrate an intervention effect, and comparing the observed and projected patterns of the outcome variable.

Results

Research Question 1: Treatment Integrity

Research question one asked: To what extent is there a functional relationship between the implementation of performance feedback and paraeducators' treatment integrity of a behavior intervention plan (BIP)? For all student-paraeducator dyads, visual analysis revealed that there was a change in level of the data from the baseline phase to the introduction of the intervention. Overall, an increasing trend can be seen in the intervention phase (see Figure 2). A decrease in variability was seen for each dyad and data patterns demonstrated consistency in both the baseline and the intervention phases. The immediacy of the effect after the implementation of performance feedback was

clearly seen across all four dyads. PAND and Phi for treatment integrity were 75% and .54 respectively, indicating a medium effect size for treatment integrity. See Table 5 for all effect sizes. The paraeducators with initially higher levels of treatment adherence increased their consistency after receiving performance feedback (dyads A & C), while the paraeducators with lower baseline treatment adherence showed a larger jump in level. The average treatment integrity across baseline phases was 43% with a range of 13% to 67% across all dyads. During the intervention phases, the average treatment adherence ranged from 37% to 94% with an average of 68%. The data in both phases (baseline and intervention) had a varied trendline. See Figure 1 for graphed results.

Two of the four participants met the "80% over three observations" criteria and performance feedback was discontinued after three sessions. For paraeducator A, three meetings were cancelled as a result of meeting the requirement, whereas paraeducator C, only had one meeting cancelled. Overall, the primary researcher had three to five performance feedback meetings with the paraeducators. As previously mentioned, both treatment adherence and treatment quality were recorded. Average treatment quality across dyads from baseline to intervention increased slightly. In general, paraeducators with higher rates of treatment adherence also produced higher rates of treatment quality. However, the paraeducator who had the highest level of treatment adherence (dyad A), did not have the highest level of treatment quality (dyad C) (see Table 6).

Research Question 2: Noncompliance

Research question two asked: To what extent is there a functional relationship between the implementation of performance feedback and a decrease in noncompliance?

Visual analysis revealed that there was not an immediate change in level for the frequency of noncompliance between the baseline and intervention upon the introduction of performance feedback. The immediacy of the effect after the implementation of performance feedback was not clear for this dependent variable. The average frequency of noncompliance across baseline phases was five with a range of two to nine across all dyads. During the intervention phases, the average frequency of noncompliance ranged from zero to nine with an average of four. The data in both phases (baseline and intervention) had a varied trendline; however a decreasing trendline emerged for dyad A and dyad C. PAND and Phi for noncompliance were 39% and .13 respectively (see Figure 2).

RQ3: Replacement Behavior

Research question 3 asked: To what extent is there a functional relationship between the implementation of performance feedback and an increase in replacement behaviors identified in the BIP? Visual analysis revealed that there was not an immediate change in level or trend for the frequency of replacement behavior between the baseline and intervention upon the introduction of performance feedback. The average frequency of replacement behavior was one in both the baseline and the treatment phases. The range for both was zero to four. PAND and Phi for replacement behavior were 7% and 0 respectively (see Figure 3). Paraeducator-recorded frequency count of replacement behavior for IEP goal progress monitoring slightly increased overall after the start of the intervention.

Interobserver Agreement

As previously stated in the procedure section, the paraeducators were required to collect student-level data for IEP goal progress monitoring. For the duration of the study, they were using researcher-provided forms (See Appendix I) that were identical to the forms used for data collection. The IOA across all four paraeducators and the primary researcher during observation was 77% with a range of 30-95%. Overall, paraeducators were recording the frequency of noncompliance and replacement behavior with high levels of accuracy.

Interrater Reliability

As previously stated, inter-rater reliability was collected on the following intervention components: baseline phases, intervention phases, performance feedback sessions. Inter-rater reliability was higher for the behavioral data (noncompliance and replacement behavior, 90%), when compared to the treatment integrity data (65%). This finding could be due to the simplicity of recording whether or not a behavior occurred versus the complexity of scoring treatment adherence and treatment quality. When further examining the IRR of the treatment adherence data, all components were dichotomized into “present” or “not present”. Present included ratings of 3 = Complete, 2 = Substantial, 1 = Limited. Not Present only included ratings of 0 = None. Using the dichotomous variables, IRR was recalculated at 82%. This provides evidence that the raters were in agreement on the presence of the implementation, more so than the level of adherence. Inter-rater reliability for the independent variable (performance feedback) was collected once for each paraeducator. This resulted in four occasions, which is approximately 28%

of all performance feedback sessions. Inter-rater agreement using the procedural fidelity checklist was 100%. Across all sessions (14 total), procedural fidelity was at 92% using the performance feedback fidelity checklist.

Discussion

This study was designed to further examine the functional relationship between performance feedback and treatment integrity of behavior intervention plans (BIP). Student level variables including noncompliance and replacement behaviors were also measured. Overall, the average percentage of treatment integrity improved from 43% to 68% after the implementation of performance feedback. See Table 7 for all effect size averages. Visual analysis showed an increase in the overall level of treatment integrity. In other words, all participants increased their overall level of treatment adherence, regardless of their baseline. Treatment quality also increased when looking at averages across dyads. Furthermore, visual analysis revealed that an immediacy effect occurred after the start of the intervention for three of the four participants. This result is consistent with performance feedback literature, particularly with behavioral interventions (Codding et al., 2008; Sanetti et al., 2007).

Visual analysis of each dyad highlights an interesting finding concerning dyad D. The paraeducator began the study with the lowest overall treatment integrity, but produced the largest PAND result for both treatment integrity (85%) and replacement behavior (25%). Unfortunately, dyad D's highest percentage of treatment integrity was 46%. This translates into the fact that the student in dyad D is only receiving an average of 46% of their comprehensive BIP. Prior research concurs that 80% is "acceptable"

when regarding the treatment integrity of behavior interventions. As previously stated, two of the four dyads reached 80% consistently (i.e., across three observations). Those dyads (A and C), also produced a larger PAND regarding noncompliance (67% and 65% respectively). This finding aligns with research stating that interventions implemented with high levels of fidelity lead to better student outcomes (Wilkinson, 2006).

When examining the results for the student-level variables (noncompliance and replacement behavior), the level, trend, and immediacy of the effect are less clear. Although the introduction of performance feedback produced a small effect, the average frequency of noncompliance from baseline to intervention is not significant. Ramifications of this finding will be discussed further. Another unanticipated facet of this study was the addition of paraeducator-recorded data in the form of IEP goal progress monitoring, which shows an overall decrease in noncompliance for two of the four students across the school day. In other words, paraeducators were reporting lower levels of noncompliance when looking at daily totals, across the span of this study. Unfortunately, the effect of performance feedback on the frequency of replacement behavior did not occur. One explanation for this result is the nature of the researcher observations. It is possible that the researcher was not present for the behavior to occur. When examining the paraeducator-collected data, there is evidence of an overall increase of replacement behavior for two of the four students.

There are two primary hypotheses as to why performance feedback did not have an effect on replacement behavior: replacement behaviors may have been incorrectly chosen and replacement behaviors were not reinforced consistently. Additionally, if the

replacement behavior identified in the BIP (e.g. will request a break) is not appropriate or functionally equivalent, the student is less likely to engage in said behavior and even less likely to be reinforced. Considering several of the replacement behaviors were “will request break” the creator of the BIP is positing that the behavior of the four students is maintained by escape. Furthermore, the replacement behavior for dyad D, “will attempt work independently” is not functionally equivalent regardless of function. Attempting work independently is a desired behavior, and likely something that the IEP team (case manager, school psychologist, paraeducator) has identified as an area of need for the student. In the event that the function was identified correctly (escape-maintained noncompliance), attempting work independently does not allow the student to get the same needs met in a noncontingent manner. Dyad D’s BIPQE score was the lowest of the four, but still made the cutoff to be included in the study. Further analysis of the function of noncompliance was not a part of this study and therefore was not completed. Additionally, only one of the four BIPs was developed following a functional behavior assessment (FBA). That particular dyad, C, began the intervention with higher levels of treatment integrity overall. Hirsch, Bruhn, Lloyd, and Katsiyannis, (2017) introduced the idea of a “well matched” function, that is derived from accurate and systematically collected data. Although the BIPQE was used to screen technical adequacy, it cannot identify whether the correct function was identified.

Even though the BIPs used in the study were technically sound, there is evidence that the replacement behaviors were not being routinely reinforced. At times, requests for a break were ignored, or the student was prompted to continue working. Unfortunately,

rates of reinforcement were not measured. Implementing a dense enough reinforcement schedule is critical for replacement behavior. Students need to have enough access to reinforcement, so the replacement behavior becomes a part of their behavioral repertoire (Cooper, Heron, & Heward, 2007). If the student is aware of under what conditions to exhibit a replacement behavior (e.g., ask for a break), they are more likely to engage in said behavior, and less likely to engage in the maladaptive behavior (Jolivette, Terrance, & Nelson, 2000). It is also important to note that it is not known if the students were explicitly taught the replacement behaviors. Included in each BIP, and in the BIPQE scoring guide, is a section titled Teaching Strategies. In this section, the creator of the BIP is to identify what steps need to be taken to ensure that the student can successfully demonstrate the replacement behavior. Once again, although the BIPQE can screen for these technicalities, the fidelity in which the Teaching Strategies were implemented is unknown.

In contrast, several components of the BIPs were always implemented with fidelity as they were a part of the classroom environment (e.g., visual schedule, token economy). The degree to which the paraeducator appropriately referred to the visual schedule or utilized the token economy did vary across dyads, which can be seen in the treatment quality averages. Qualitative data show that components more likely to be implemented included priming and use of first-then statements. This finding is encouraging, as research finds that antecedent strategies have several notable advantages when compared to consequence strategies (Bambara & Kern, 2005). Antecedent

strategies can prevent problematic behavior by modifying the environment and reducing the likelihood of the problem behavior occurring (Kern & Clemmons, 2007).

This study is unique in that captures a direct service provider who is usually not included in decision making but holds the primary responsibility of BIP implementation. As previously mentioned, the investment of a 1:1 paraeducator is preceded by comprehensive assessments, school psychologist recommendations, and team decisions. In the current district, paraeducators were not a part of IEP team meetings and the responsibility of disseminating the IEP or BIP information often fell to the case manager, or classroom teacher. Regardless of prior training, paraeducators are often forced to take on several different responsibilities including direct instruction, behavior correction, and progress monitoring. An important but unexpected finding of this study was the IOA of researcher- and paraeducator-recorded data. Although these data were not used in any statistical analysis, they should be considered an interesting finding of the study. As previously mentioned, new datasheets were provided by the researcher at the paraeducators request. Datasheets were designed to utilize the classroom-schedule, which was unlikely to change for an SDC. The new datasheets also proved to be more effective for behavior tracking, as staff were able to easily identify patterns and setting events.

Social Validity

Results from the social validity survey show high levels of treatment acceptability by all four paraeducators (see Table 4). This is also an important outcome, as providing feedback on a coworker's performance can be met with opposition. Social validity was not collected from other distal participants at the school-site including the special

education classroom teacher and the school-site principal. By utilizing behavioral consultation skills, as well as social power bases (Erchul, & Raven, 1997; Erchul, Raven, & Ray, 2001) and social influence (Cialdini, 1993), the primary researcher sought to elicit adult behavior change through personal power bases, including referent and expert. Referent power utilizes interpersonal skills, while expert relies on skill-set and specialties. By building personal relationships with paraeducators, the primary researcher used the liking principle, whereby consultees are more likely to respond to requests of people they know and like. Within the liking principle, there are several applicable factors, including compliments (specific praise/verbal feedback) and contact and cooperation (working toward a common goal). Erchul (2013) highlights the importance of social influence when delivering performance feedback by focusing on three key aspects of consultation. First, Erchul (2013) posits that persuading a consultee to implement an evidence-based intervention is a clear example of social influence, as the consultant is changing not only the consultee's beliefs but also their behavior. Second, the use of face-to-face communication is more effective than other types of communication due to nonverbal cues, higher social presence, and greater vividness. Lastly, since treatment integrity requires the consultee to comply and adhere to standardization, it is not as valued by all consultation approaches.

The principle of commitment and consistency was also utilized, relying on the phenomenon that individuals are more likely to act in accordance to their prior commitments. Each paraeducators signed a consent form to participate in the study and complete the tasks asked of them. Moreover, the paraeducators not only agreed to collect

data and requested different datasheets be provided. As previously mentioned, the participating district maintained a current contract with the university to provide behavioral professional development and several on-site graduate student employees. The primary researcher had been working at the elementary school for over a year when data collection began. Although the paraeducators were not a part of the IEP meetings, the primary researcher involved sought to involve the paraeducators on a daily basis. The positive use of referent power helped facilitate the results in regard to the jump in treatment integrity.

The participants frequently reported to the primary researcher that they enjoyed the performance feedback sessions and felt as though their opinions and concerns were being validated through the process. Responses from the paraeducator survey given at the beginning of the study found that the sample was reporting that they were not adequately trained to implement behavior plans and that they wish they received more training and/or support to implement behavior interventions. As previously mentioned, an ongoing issue with classified staff is the confusion of supervision both at the school-level as well as the district-level (Chopra, Sandoval-Lucero, & French, 2011). By being employed through the special education department, they are automatically under the administrative supervision of both the site-principal, as well as the special education director. This is clouded further when paraeducators are assigned to a classroom or individual student, and the special education teacher takes on a supervisory role that they are not trained for (Douglas, Chapin, & Nolan, 2016; Wallace, Shin, Bartholomay, & Stahl, 2001).

Limitations

There are several limitations worth noting. The main concern, being that the primary researcher used BIPs that were already in place and did not modify them during the study. It is possible that the wrong function was identified and, in that case, an increase in treatment integrity would not lead to the hypothesized student-level results. Although measures were taken to ensure the technical adequacy of the BIPs, unknown function is still an important limitation. A way to circumvent this issue would be to test the function identified in the BIP through the use of analogue assessment before beginning performance feedback. The same procedures can be applied to the proposed replacement behavior identified in the BIP. By drawing on previous research, the idea of "function-matching" becomes pertinent when creating a comprehensive BIP (Jolivette, Terrance, & Nelson, 2000). In addition to ensuring the accuracy of the BIP, it is also important to set up the environment to allow for reinforcement to be accessible. For example, by increasing opportunities to respond, one is increasing the opportunities for reinforcement, which can lead to an increase in appropriate student behavior overall (Partin et al., 2009). A final note regarding the importance of BIP implementation is the importance of Teaching Strategies and ensuring their fidelity.

Another possible limitation is the phenomenon of observer reactivity, or the assumption that the consultant's presence during observations serves as a stimulus and reminds the consultee to engage in the behavior in question. A study by Codding et al. (2008) found no differentiation between the observer-absent and observer-present phases. Although observer reactivity was not addressed through the methodology of the current

study, the primary researcher was frequently in the classrooms of the participants during non-observation periods as well.

Another important factor to note is the use of a sample of convenience. From the original sample of five, all paraeducators were employed within the same school in three different classrooms. Having all of the paraeducators at the same school allowed the primary researcher to be "on-site" more often to build relationships with the school-staff include the paraeducators. The procedure of the study (weekly performance feedback with cancellation at 80%), lends itself to being completed by an on-site employee such as a school psychologist.

A threat to the generalizability of this study is that a majority of the data-collection occurred within an SDC, with low student-adult ratios. Although one student did participate in mainstreaming, the uniqueness of the SDC setting may have affected the results of the study in regard to the increase in treatment large increase in treatment integrity. In addition to the low student-adult ratio, both the credentialed teachers and the staff had access to more professional development than the average educators. In response to the paraeducator survey, participants reported receiving 10-100 hours of behavior-specific professional development throughout their career.

Implications and Future Directions

Implications of this study include further support for the use of performance feedback to increase treatment integrity of behavior interventions. The immediate jump in level after only one performance feedback session provides evidence that effects were seen immediately. Paraeducators responded quickly to the intervention with minimal time

spent for additional training (one 20 minutes training that occurred before baseline data collection). This study is unique in that targets an important special education team member, who often reports feeling unprepared and undertrained (Breton, 2010; Carlson et al., 2002). Although most of the data collection took place in an SDC setting, the positive results were maintained while one student mainstreamed into the general education setting. This finding aligns with the push for an inclusion model (Suter & Giangreco, 2009), which will result in a demand for additional paraeducators. In regard to feasibility for school psychologists, the average length of the performance feedback intervention was 6.4 minutes, making it exceptionally time-efficient. As previously stated, the primary researcher worked as a full-time school psychologist within the district and was on-site approximately 70% of the work-week, with 30% being spent at another district-site. It is important to note that the preparation for the meetings adds to the responsibilities and time commitment of the consultant providing performance feedback. This would include tasks such as gathering the data sheets and graphing the data, which takes time and effort. However, in the event that the data are needed by the team to make high-stakes decisions, such as change of placement, the consultant or school psychologist will already have access to the data. Performance feedback can be viewed as a proactive intervention. Currently, the field is experiencing a push for data-based decision making and multi-tiered systems of support (Eagle, Dowd-Eagle, Snyder, & Holtzman, 2015). Performance feedback can occur at any Tier, and has shown to be successful when applied to more severe student problems (e.g., Tier 3) as well as with special education service providers.

Both the results and limitations of this study bring up possible directions or next steps. By taking a proactive approach and applying performance feedback when conducting FBAs, the subsequent intervention would be more likely to identify the correct function. The high rates of IOA for data collection, lend themselves to paraeducators collecting more accurate data that can be used to inform hypothesis testing and decision making. Overall, the use of continued use of performance feedback while working with paraeducators is supported by the effect seen across all participants. It proved to be a socially valid and sustainable intervention. Performance feedback aligns with best practice and can be feasibly implemented within a school setting.

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Table 1

Paraeducator Demographics

ID	Age	Employment Status	Experience (years)	Education	Professional Development	Behavior-specific Professional Development
A1	0	1	10	1	2	2
B1	1	0	17	0	0	0
C1	2	0	10	3	1	0
D1	0	1	9	1	1	1

Note. Age: 0= 50-55, 1= 56-60, 2= 60 or over; Employment Status: 0= Part-time, 1= Full-time; Education: 0= Some College, 1= A.A. Degree or Two Years College, 2= Bachelor's Degree, 3= Masters Degree; Professional Development: 0= 1-50 hours, 1= 51-100, 2= 100+; Behavior-specific Professional Development: 0= 0-20 hours, 1=21-50 hours, 2= 50 + hours,

Table 2

Results from Paraeducator Survey

Statement	M	SD
"I feel comfortable implementing behavior plans for challenging behavior concerns"	4.5	1.5
"I received adequate training to implement behavior plans"	1.7	.80
"I receive adequate supervision and ongoing support when dealing with challenging behavior"	4.2	1.2
"I feel confident in my skills to handle challenging behavior"	5.5	1.8
"I wish I received more training and/or support to implement behavior interventions"	6.5	.5

Note. Survey utilized a 1-7 Likert Scale from "Strongly Disagree" to "Strongly Agree"

Table 3
Student Demographics

ID	Grade	Eligibility	Placement	FBA	BIPQE Score	Replacement Behavior
A2	5th	0	0	0	18	1
B2	4th	1	1	0	21	0
C2	1st	0	1	1	22	0
D2	5th	0	1	0	18	2

Note. Eligibility: 0= Characteristics Often Associated with Autism, 1= Intellectual Disability; Placement: 0= Moderate/Severe Special Day Class, 1= Mild/Moderate Special Day Class; FBA: 0=no, 1=yes; Replacement Behavior 0= requesting break, 1= requesting sensory break, 2= attempt task independently.

Table 4
Social Validity

Dyad	Total	M	SD
A	90	6	0
B	78	4.8	1.4
C	82	5.1	.3
D	90	6	0

Table 5

Average Effect Size Statistics

	PAND	Phi	Interpretation (Cohen, 1988)
Treatment Integrity	75%	.54	Medium
Noncompliance	39%	.13	No Effect
Replacement Behavior	7%	0	No Effect

Table 6
Average Percentage of Adherence and Quality across Dyads

	Baseline		Intervention	
	Adherence	Quality	Adherence	Quality
A	63%	49%	81%	53%
B	39%	23%	60%	40%
C	60%	41%	78%	64%
D	25%	19%	40%	25%

Table 7

Effect Size Across Dyads and Dependent Variables

	PAND			Phi		
	TI	Noncompliance	Replacement Bx	TI	Noncompliance	Replacement Bx
A	75%	65%	0%	.63	.24	0
B	70%	15%	15%	.41	0	0
C	70%	65%	5%	.41	.29	0
D	85%	10%	10%	.70	.11	.19

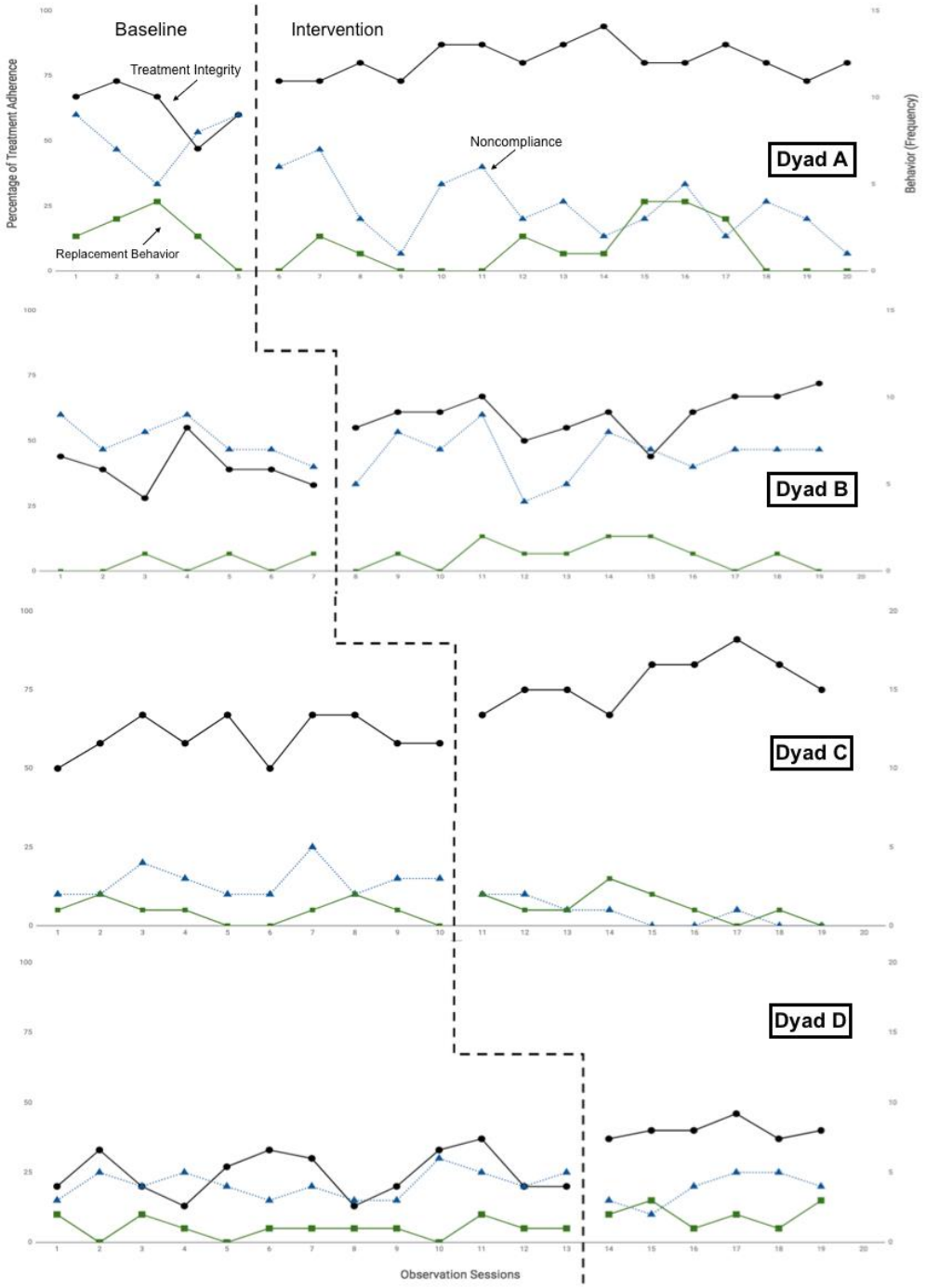

Figure 1. Results across all dependent variables.

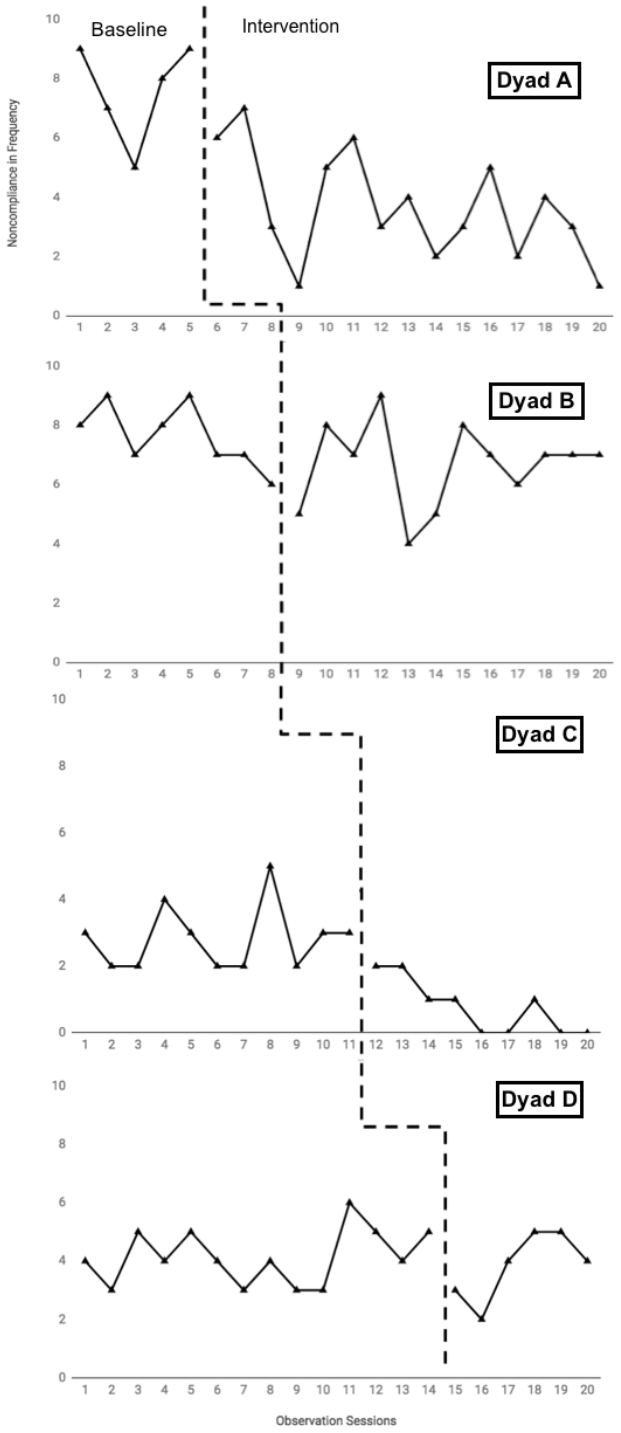

Figure 2. Effect of performance feedback on noncompliance

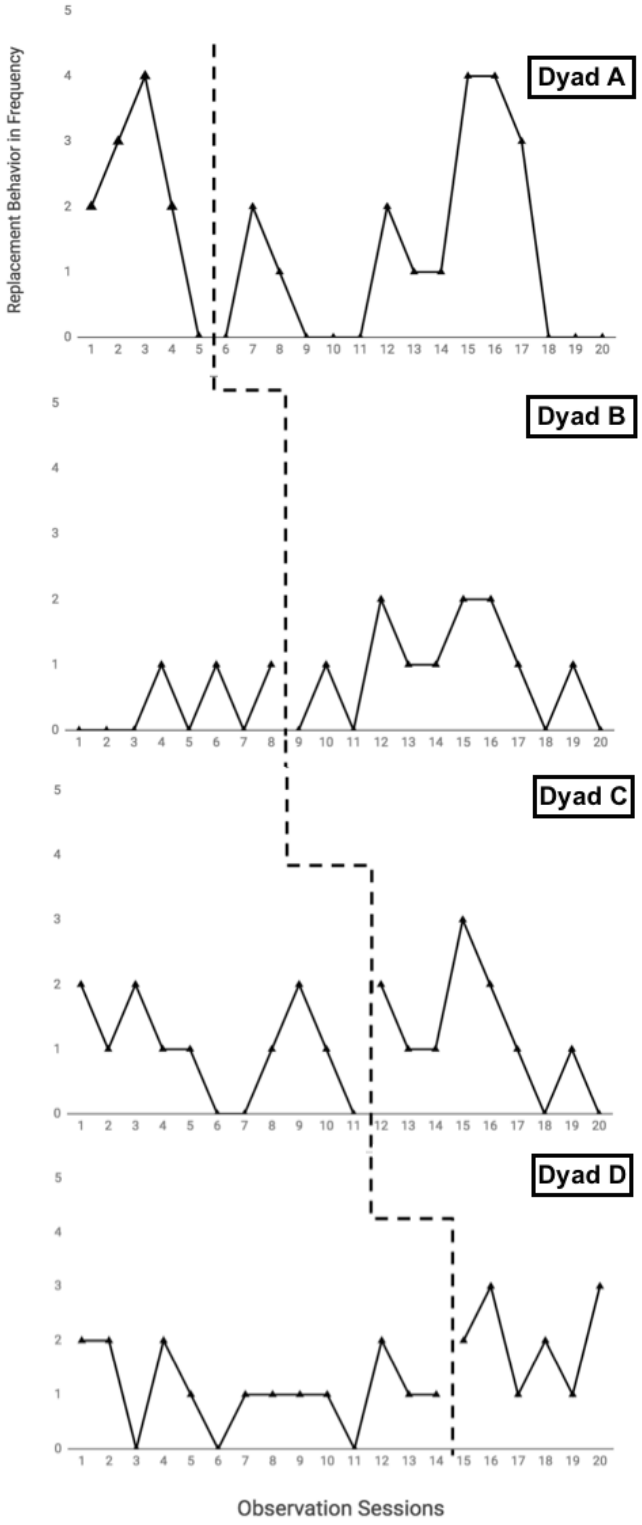

Figure 3. Effect of performance feedback on replacement behavior

Appendix A. Informed Consent

PRINCIPAL INVESTIGATOR

Ally Cipani M.A.
PhD Candidate in School Psychology
Graduate School of Education
University of California, Riverside

Dr. Cathleen Geraghty-Jenkinson
Graduate School of Education
University of California, Riverside

PURPOSE OF STUDY

You are being asked to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. The purpose of this study is to study the relationship between treatment integrity and student outcomes.

STUDY PROCEDURES

You will be observed performing your usual role within the classroom. You will be asked to briefly (5-10 minutes) meet with the principal investigator once per week to go over the observations from the current week. There will also be a short survey before and after the study concludes. Your information will always be kept private and confidential.

RISKS

Although the risk is minimal, you may decline to answer any or all questions and you may terminate your involvement at any time if you choose.

CONFIDENTIALITY

Your responses to the survey will be anonymous. Please do not write any identifying information on your copy. Every effort will be made by the researcher to preserve your confidentiality including the following:

● Assigning code names/numbers for participants that will be used on all research notes and documents

● Keeping notes, interview transcriptions, and any other identifying participant information in a locked file cabinet in the personal possession of the researcher.

COMPENSATION

Your time is valuable and your participation is appreciated. You will be compensated for your time via a gift card of your choice!

CONTACT INFORMATION

If you have questions at any time about this study, or you experience adverse effects as the result of participating in this study, you may contact the researcher whose contact information is provided on the first page. If you have questions regarding your rights as a research participant, or if problems arise which you do not feel you can discuss with the Primary Investigator, please contact the UC Riverside Office of Research Integrity.

University of California, Riverside Office of Research Integrity
900 University Ave.
216 University Office Building Riverside, CA 92521

Phone: 951-827-4802
IRB@ucr.edu

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship you have, if any, with the researcher. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Alessandra Cipani M.A.

acipa001@ucr.edu

(559) 802-2463

Dr. Cathleen Geraghty-Jenkinson

cathleen.Geraghty@ucr.edu

(951) 827-2051

for internal use only

_____ Date received by researcher

_____ Participant ID

Appendix B. Paraeducator Survey

Thank you for participating! Please fill out this survey to the best of your ability. You may skip any question you prefer not to answer.

Age: _____

1) Are you a part-time or full-time employee?

_____

2) How long have you worked as a paraeducator (instructional aide, one-on-one aide)?

_____

3) How long have you worked at your current location?

_____

4) Are you currently enrolled in school? _____

If no: What is your highest level of education attained?

_____

5a) Approximately how many hours of professional development have you participated in (on-site training, off-site training, job training, etc.)?

_____

5b) Approximately how many of behavioral training have you received?

_____

	On a scale of 1-7, please answer these questions to the best of your ability.	**Strongly Disagree**			**Neither**		**Strongly Agree**	
		1	**2**	**3**	**4**	**5**	**6**	**7**
1	I feel comfortable implementing behavior plans for challenging behavior concerns							
2	I received adequate training to implement behavior plans							
3	I receive adequate supervision and ongoing support when dealing with challenging behavior							
4	I feel confident in my skills to handle challenging behavior							
5	I wish I received more training and/or support to implement behavior interventions.							

Appendix C. Classroom Teacher Consent

PRINCIPAL INVESTIGATOR

Ally Cipani M.A.
PhD Candidate in School Psychology
Graduate School of Education
University of California, Riverside

Dr. Cathleen Geraghty-Jenkinson
Graduate School of Education
University of California, Riverside

PURPOSE OF STUDY

You are being asked to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information. The purpose of this study is to study the relationship between treatment integrity and student outcomes.

STUDY PROCEDURES

A paraeducator in your classroom has been chosen and consented to participate in this research study. As such, your classroom will be observed during the instructional school-day to collect data on the following:

- Treatment integrity of the behavior plan as implemented by the paraeducator
- Frequency of noncompliance for the target student
- Frequency of the replacement behavior for the target student

The paraeducator will be asked to briefly (5-10 minutes) meet with the principal investigator once per week to go over the observations from the current week. All data and information collected from your classroom will always be kept private and confidential. Every effort will be made by the researcher to preserve your confidentiality including the following:

- Assigning code names/numbers for participants that will be used on all research notes and documents

- Keeping notes, interview transcriptions, and any other identifying participant information in a locked file cabinet in the personal possession of the researcher.

RISKS

Although the risk is minimal, you may decline to consent to the study or you may terminate your involvement at any time if you choose.

CONTACT INFORMATION

If you have questions at any time about this study, or your experience adverse effects as the result of participating in this study, you may contact the researcher whose contact information is provided on the first page. If you have questions regarding your rights as a research participant, or if problems arise which you do not feel you can discuss with the Primary Investigator, please contact the UC Riverside Office of Research Integrity.

University of California, Riverside Office of Research Integrity
900 University Ave.
216 University Office Building Riverside, CA 92521

Phone: 951-827-4802
IRB@ucr.edu

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship you have, if any, with the researcher. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form. I voluntarily agree to take part in this study.

Classroom Teacher's signature _____ Date _____

Investigator's signature _____ Date _____

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Dr. Cathleen Geraghty-Jenkinson

cathleen.Geraghty@ucr.edu

(951) 827-2051

for internal use only

_____ Date received by researcher

_____ Classroom ID

Appendix D. Informed Consent for Parents

Dear Wild Rose Parent,

As part of your child's Special Education Program, he/she has a behavior intervention plan (BIP) to help support their behavior. Your child currently receives support by an instructional aide. As part of my role as the school psychologist, I work with all special education staff including the 1:1 aide.

I help by supporting the BIP, including providing feedback on how the plan is going and observing the aide interacting with the student. The observations are used only to help improve the quality of service delivery.

I am currently a doctoral student in the Graduate School of Education in the School Psychology Program at the University of California, Riversde.In order to better improve special education service delivery, I would like to use the anonymous behavioral data as part of a research study. No identifying information will be used in the study, and the services provided are what would otherwise be provided to your child. No part of your child's special education services will be altered at any point of data collection.

The data collected will include: how often behaviors occur and how the BIP is implemented. Other information that will be collected includes their age, grade and primary eligibility, but NO identifying information.

ALL information will be coded and your child's name will never be used in any type of data storage, collection or publication of the results. If you do not wish to have your child's data be a part of the study, please contact the primary researcher and your child's data will not be included the study.

If you consent to the study procedures described above, please mark the "Yes, I consent" box, sign and return the paper. If you do not consent please mark the "No, I do not give my consent" box, sign and return the papers. <u>All forms that are not returned will be deemed as no consent.</u>

An institutional review board (IRB) approval has been provided for this study and can be found through the following:

University of California, Riverside Office of Research Integrity
900 University Ave.
216 University Office Building Riverside, CA 92521

Phone: 951-827-4802 IRB@ucr.edu

For further information or clarification regarding the study, my role or any part of your child's IEP please feel free to contact myself, the primary researcher of the study and school psychologist at your child's site at:

Alessandra Cipani **Dr. Cathleen Geraghty-Jenkinson**

acipa001@ucr.edu **cathleen.Geraghty@ucr.edu**

(559) 802-2463 **951-827-2051**

☐ **Yes, I consent for the data collection**

☐ **No, I do not give my consent for the data collection**

_____ _____

Signature **Date**

for internal use only

_____ Date received by researcher

_____ Student ID

Appendix E. Student Assent Script

Hi. My name is Ally and I am the school psychologist here at Wild Rose. I'm also a student at UC Riverside. Right now, I'm trying to learn about the best way to support your teachers and aides. I would like to ask you to help me by being in a study, but before I do, I want to explain what will happen if you decide to help me.

By being in the study, you will help me understand the best ways to help the adults in your classroom as they help you learn. I will be coming into your classroom to observe the entire classroom including all the students and teachers. I will also be taking notes on what I see. When I tell other people about my study, I will not use your name, and no one will be able to tell who I'm talking about.

Your mom/dad/guardian says it's okay for you to be in my study. But if you don't want to be in the study, you don't have to be. I won't be upset, and no one else will be upset, if you don't want to be in the study. If you want to be in the study now but change your mind later, that's okay. You can stop at any time. If there is anything you don't understand you should tell me so I can explain it to you.

Do you have any questions for me now?

Would you like to be in my study?

Name of Child: _____

Parental Permission on File: Yes / No

(If "No," do not proceed with assent or research procedures.)

Child's Voluntary Response to Participation: Yes No

Signature of Researcher: _____ Date: _____

Appendix F. Behavior-recording Data Sheet

Student Name, Date

Interval	Noncompliance in frequency	Replacement BX as stated in BIP "*request a break/sensory item*"	Notes:
8:00-8:30			
8:30-9:00			
9:00-9:30			
9:30-10:00			
RECESS			
10:30-11:00			
11:00-11:50			
LUNCH			
12:40-1:30			
1:30-2:00			
2:00-2:30			
2:30-3:00			

Notes:

Appendix G. Treatment Integrity Checklists

Treatment Integrity Assessment for Behavior Intervention Plans

Date: April 10th, 2018 | Student: A1 | Time Start: 9:05

Setting: In Class-Morning Meeting | Staff: A2 | Time End: 9:34

Component (type)	Adherence				Quality				
	Complete	Substantial	Limited	None	NA	Excellent	Good	Fair	Poor
Visual Schedule (environmental)	3	2	1	0	NA	3	2	1	0
First/then contingency (antecedent)	3	2	1	0	NA	3	2	1	0
Direct commands (antecedent)	3	2	1	0	NA	3	2	1	0
Specific praise (consequence)	3	2	1	0	NA	3	2	1	0
Timed breaks (environmental)	3	2	1	0	NA	3	2	1	0

Sum Columns _____ Sum Columns _____

Sum Adherence Columns / Sum of Total Steps _____ Sum Quality Columns / Sum of Total Steps _____

Adherence % _____ **Quality %** _____

Treatment Integrity Assessment for Behavior Intervention Plans

Date: April 1st 2018
Setting: In Class-Math

Student: B1
Staff: B2

Time Start: 10:15AM
Time End: 10:40AM

Component (type)	Adherence				Quality				
	Complete	Substantial	Limited	None	NA	Excellent	Good	Fair	Poor
Precision Requests - (Directions given 2x before pre-determined consequence delivered) Antecedent	3	2	1	0	NA	3	2	1	0
Priming for transitions (Antecedent)	3	2	1	0	NA	3	2	1	0
DRA (Antecedent)	3	2	1	0	NA	3	2	1	0
Visual timer (Antecedent)	3	2	1	0	NA	3	2	1	0
Token Economy (Consequence)	3	2	1	0	NA	3	2	1	0
Prompt functional communication responses (Consequence)	3	2	1	0	NA	3	2	1	0

Sum Columns

Sum Columns

Sum Adherence Columns / Sum of Total Steps

Sum Quality Columns / Sum of Total Steps

Adherence %

Quality %

Treatment Integrity Assessment for Behavior Intervention Plans

Date: May 1st 2018
Setting: In Class (Gen Ed)-ELA

Student: C1
Staff: C2

Time Start: 11:15AM
Time End: 10:40AM

Component (type)	Adherence				Quality				
	Complete	Substantial	Limited	None	NA	Excellent	Good	Fair	Poor
First/then card (Antecedent)	3	2	1	0	NA	3	2	1	0
Wait with no verbal engagement (Consequence)	3	2	1	0	NA	3	2	1	0
Block elopement (Consequence when applicable)	3	2	1	0	NA	3	2	1	0
Visual timer (Antecedent)	3	2	1	0	NA	3	2	1	0
Token Economy (Consequence)	3	2	1	0	NA	3	2	1	0
Forced choice for writing assignments (Antecedent)	3	2	1	0	NA	3	2	1	0

Sum Columns _____

Sum Columns _____

Sum Adherence Columns / Sum of Total Steps _____

Sum Quality Columns / Sum of Total Steps _____

Adherence % _____

Quality % _____

Treatment Integrity Assessment for Behavior Intervention Plans

Date: April 21st 2018
Setting: In Class-Math

Student: D1
Staff: D2

Time Start: 10:15AM
Time End: 10:45AM

Component (type)	Adherence				Quality				
	Complete	Substantial	Limited	None	NA	Excellent	Good	Fair	Poor
Allow extra time for tasks (Antecedent)	3	2	1	0	NA	3	2	1	0
Priming for changes (Antecedent)	3	2	1	0	NA	3	2	1	0
Prompt for a break (Consequence)	3	2	1	0	NA	3	2	1	0
Visual timer (Antecedent)	3	2	1	0	NA	3	2	1	0
Token Economy (Consequence)	3	2	1	0	NA	3	2	1	0
Positive reinforcement (1:1 adult attention; consequence)	3	2	1	0	NA	3	2	1	0

Sum Columns

Sum Columns

Sum Adherence Columns / Sum of Total Steps

Sum Quality Columns / Sum of Total Steps

Adherence %

Quality %

Appendix H. Behavior Intervention Plan Quality Evaluation (BIPQE)

BIP QUALITY EVALUATION RECORD SHEET

Student: _____ Date of Plan: _____

BIP-QE II Evaluator: _____ Date of Evaluation: _____

_____	A.	Line 1	Problem Behavior
_____	B.	Line 5	Predictors of Behavior
_____	C.	Line 6 links to 5	Analyzing What is Supporting Problem Behavior
_____	D.	Line 7 links to 6	Environmental Changes
_____	E.	Line 8 links to 5	Predictors Related to Function
_____	F.	Line 9 links to 8	Function Related to Replacement Behaviors
_____	G.	Line 10 links to 9	Teaching Strategies
_____	H.	Line 11	Reinforcement
_____	I.	Line 12	Reactive Strategies
_____	J.	Line 13	Goals and Objectives
_____	K.	Lines 7, 10, 12, 14	Team Coordination
_____	L.	Line 14	Communication
_____		*Total Score (X/24)*	

Suggestions for improving this plan: _____

_____

_____

_____

A well developed plan embodies best practice: a careful analysis of the problem, comprehensive interventions and a team effort to teach new behavior and remove elements in the environment associated with problem behavior.

- ***Fewer than 12 points = Weak Plan***
  This plan may affect some change in problem behavior but the written plan only weakly expresses the principles of behavior change. This plan should be rewritten.

- ***13 – 16 points = Underdeveloped Plan***
  This plan may affect some change in problem behavior but would require a number of alterations for the written plan to clearly embody best practice. Consider alterations.

- ***17 – 21 points = Good Plan***
  This plan is likely to affect a change in problem behavior and elements of best practice are present.

- ***22 – 24 points = Superior Plan***
  This plan is likely to affect a change in problem behavior and embodies best practice.

Appendix I. Adapted IRP-15

2015-2016

POST-INTERVENTION

Student _____ Rater completing this form _____ Date _____

Adapted Version of the Intervention Rating Profile-15

The purpose of this questionnaire is to obtain information that will aid in the selection of future classroom interventions. These interventions will be used by teachers of children with identified needs. Please circle the number which best describes your agreement or disagreement with each statement.

	Strongly disagree	*Disagree*	*Slightly disagree*	*Slightly agree*	*Agree*	*Strongly agree*
1. This was an acceptable intervention for the child's needs.	1	2	3	4	5	6
2. Most teachers would find this intervention appropriate for children with similar needs.	1	2	3	4	5	6
3. This intervention proved effective in supporting the child's needs	1	2	3	4	5	6
4. I would suggest the use of this intervention to other teachers.	1	2	3	4	5	6
5. The child's needs were severe enough to warrant use of this intervention.	1	2	3	4	5	6
6. Most teachers would find this intervention suitable for the needs of this child.	1	2	3	4	5	6
7. I would be willing to use this intervention in the classroom setting.	1	2	3	4	5	6
8. This intervention did *not* result in negative side effects for the child.	1	2	3	4	5	6
9. This intervention would be appropriate for a variety of children.	1	2	3	4	5	6
10. This intervention was consistent with those I have used in classroom settings.	1	2	3	4	5	6
11. The intervention was a fair way to handle the child's needs.	1	2	3	4	5	6
12. This intervention was reasonable for the needs of the child.	1	2	3	4	5	6
13. I liked the procedures used in this intervention.	1	2	3	4	5	6
14. This intervention was a good way to handle this child's needs.	1	2	3	4	5	6
15. Overall, this intervention was beneficial for the child.	1	2	3	4	5	6

Total (sum all points circled; higher scores indicate higher acceptability; range = 15-90): _____

Comments: _____

_____

Source: Adapted from Witt, J.C. & Elliott, S.N. (1985). Acceptability of classroom intervention strategies. In Kratochwill, T.R. (Ed.), *Advances in School Psychology, Vol. 4*, 251 – 288. Mahwah, NJ: Erlbaum. Reproduced under Fair Use of copyrighted materials for education, scholarship, and research. 17 U.S.C. § 107

Appendix J. Performance Feedback Fidelity Checklist

Date: _____ Session #:_____

Paraeducator:_____ Duration of Meeting: _____

Step Description	**Completed:**
Greeting	
Review most recent graphed data	
Review datasheets, supplies, etc.	
Elicit paraeducator feedback	
Specific praise for components implemented correctly	
Problem-solve for low TI *(if applicable)*	
Confirm next meeting	
Close session	

_____
% of completion