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Increasing Paraprofessional Fidelity of Implementation Through Performance Feedback

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Increasing Paraprofessional Fidelity of Implementation Through Performance Feedback

By

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Dedication

This dissertation is dedicated to my family and my significant other, Mike. Thank you for forever pushing me toward my dreams, pestering me when I wasn't making progress, and supporting me when I felt that I would never get there. I am eternally grateful for your unwavering love and support.

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Abstract of the Dissertation

Increasing Paraprofessional Fidelity of Implementation

Through Performance Feedback

By

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Doctor of Psychology in School Psychology
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Many of the behavioral interventions that students receive within the schools are provided by paraprofessionals, but there is little research related to their ability to provide interventions with acceptable fidelity of implementation. The purpose of this study was to examine whether paraprofessionals can provide behavioral intervention to students with adequate fidelity of implementation when provided with a short training and performance feedback through email. An ABC with replication design was utilized to examine the effect performance feedback on fidelity of implementation. Fidelity of implementation was measured using direct observation by the consultant as well as self-report of fidelity of implementation by the paraprofessionals. Fidelity of implementation was highest when graphical performance feedback through email was utilized when compared to other phases. Paraprofessionals were able to provide behavioral interventions to students with high fidelity of implementation when they were provided with a short training session and performance feedback was utilized.

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Chapter I – Introduction

Fidelity of implementation is the extent that an intervention is provided as expected (Schulte, Easton, & Parker, 2009). Fidelity of implementation is important when evaluating the effectiveness of an intervention because the changes in the dependent variable cannot be attributed to the intervention if it is not implemented as prescribed (Gresham, 2009), and it is equally important when utilizing an intervention in practice because the effectiveness of the intervention can greatly deteriorate if fidelity of implementation is low (Cook & Odom, 2013). Adequate fidelity of implementation is important when providing intervention in a school setting because student outcomes improve when an intervention is delivered as intended (Harn, Parisi, & Stoolmiller, 2013). When interventions are not provided as expected, students may not receive the full benefit of the intervention and it is possible that an inappropriate treatment may be delivered (Sheridan, Swanger-Gagné, Welch, Kwon, & Garbacz, 2009). In order to provide the most effective and appropriate intervention to students within the schools, fidelity of implementation must be measured and adequate delivery maintained.

Performance feedback indicates that a specific behavior is assessed and feedback is then given related to that behavior (Noell et al., 2005). Performance feedback is utilized in order to improve the behavior that is assessed (Cavanaugh, 2013). Performance feedback has been utilized in the school setting in order to increase fidelity of implementation when providing intervention to students (Solomon, Klein, & Politylo, 2012). Performance feedback has been demonstrated to be effective in increasing fidelity of implementation in school consultation (e.g., Noell et al., 2005; Solomon et al., 2012),

but the fidelity of implementation and performance feedback literature related to intervention in the schools has focused almost exclusively on special education and general education teachers. These fields of research have yet to focus on paraprofessionals as direct service providers.

Paraprofessionals are an integral part of the school system. The U.S. Department of Education (2007) reported that 90.6% of public elementary and secondary schools utilized paraprofessionals while 76.3% of schools utilized special education paraprofessionals. School districts may utilize paraprofessionals in many different positions within the schools, but paraprofessionals often work primarily or solely with students in special education (Minnesota Department of Education, 2013). Paraprofessionals may provide physical assistance, academic assistance, or behavioral management depending on the needs of the student(s) with whom they work. When paraprofessionals from 77 elementary, middle, and high schools provided information related to their daily responsibilities, 97% reported that they provide one-on-one instruction daily or weekly, 85.3% reported that they provide small group instructional support, and 79.4% reported that they implement behavior management programs (Carter, O'Rourke, Sisco, & Pelsue, 2009).

Paraprofessionals deliver many of the behavioral interventions that students receive within the schools (Carter et al., 2009), but there is little empirical evidence supporting their ability to implement interventions with adequate fidelity of implementation. Fidelity of implementation is important to examine within the school setting because high fidelity of implementation can improve students outcomes.

Performance feedback has been utilized in order to increase fidelity of implementation within the school setting (Solomen et al., 2012).

Most of the literature involving the use of performance feedback within the school setting has focused on increasing the fidelity of implementation with special and general education teachers (e.g., Jones, Wickstrom, & Friman, 1997; McKenney, Waldron, & Conroy, 2013; Mortenson & Witt, 1998; Noell et al., 2005; Solomon et al., 2012). The influence of performance feedback on the fidelity of implementation of paraprofessionals has not been sufficiently examined. Because paraprofessionals often provide behavioral intervention to students in the schools, it is important to examine whether paraprofessionals can provide intervention with adequate fidelity of implementation and effectiveness. The use of performance feedback should also be examined in order to determine if it can be utilized to increase the fidelity of implementation of paraprofessionals within the school setting.

Chapter II – Literature Review

Fidelity of Implementation

As mentioned earlier, fidelity of implementation is the degree to which an intervention is delivered as intended (Schulte et al., 2009). The essence of the importance of fidelity of implementation is that in order to determine that an intervention is effective, it must be demonstrated that the changes to the dependent variable are caused by the manipulation of the independent variable (Gresham, 2009). It is not possible to make these conclusions if the independent variable has not been implemented with fidelity. In order to make valid conclusions about the effectiveness of an intervention, data related to both fidelity of implementation and student outcome must be evaluated (Sanetti, Gritter, & Dobey, 2011).

The effectiveness of the intervention that was demonstrated in research may not be apparent if the intervention is not demonstrated with integrity in practice (Cook & Odom, 2013). There are many factors that influence fidelity of implementation in practice related to the external environment, organization, intervention, and the person delivering the intervention (Sanetti & Kratochwill, 2009). Some of the variables that might lead to low fidelity of implementation in practice include: low support or resistance from stakeholders, lack of resources (time, funding, supplies, staffing), low compatibility of the intervention with the context, difficult, time consuming, or ineffective intervention, or low skill proficiency, perceptions of ineffectiveness or lack of need or motivation of the person delivering the intervention (Sanetti & Kratochwill, 2009). The reason for implementing interventions within the schools with fidelity is to improve student

outcomes (Harn et al., 2013), and low fidelity of implementation may lead to the delivery of an inappropriate intervention (Sheridan et al., 2009). There are a variety of factors that may lead to low fidelity of implementation, but it is important in the delivery of intervention in both research and practice because it can lead to lowered outcomes or inappropriate intervention for students.

Although fidelity of implementation is important in intervention research and practice, it is reported surprising rarely in the literature. The experimental intervention studies in the Journal of School Psychology, Psychology in the Schools, School Psychology Quarterly, and School Psychology Review between 1995 and 2008 were utilized in order to examine fidelity of implementation (Sanetti et al., 2011). Of the 223 studies that were reviewed, 50.2% reported fidelity of implementation data, while another 13% stated that they had gathered fidelity of implementation data but did not report it. There was only a slight increase in the percentage of studies reporting fidelity of implementation from 1995 to 2008. When McIntyre, Gresham, DiGennaro, and Reed (2007) examined the Journal of Applied Behavior Analysis from 1991 to 2005, they found that in studies related to school-based interventions with children, only 30% of the 152 studies reported fidelity of implementation, and 45% of the studies were at high risk for inaccuracies related to the treatment. There was only a modest increase in the report of fidelity of implementation data during the examined period. Although fidelity of implementation is exceptionally important in intervention research, the literature does not reflect this importance.

Fidelity of implementation has also been reviewed in relation to particular student populations. Studies that examined literacy interventions for students with emotional and behavioral disorders from 1977 to 2005 were reviewed (Griffith, Hurley, & Hagaman, 2009). Of the forty-four studies that were examined, 52.3% collected and reported fidelity of implementation data. Although no studies reported fidelity of implementation in the 1970s, the percentage of fidelity of implementation data reported has increased since then and was reported in 80% of the studies in the 2000s. The fidelity of implementation data related to literacy interventions for students with emotional and behavioral disorders has increased considerably when compared to fidelity of implementation as a whole. Although an increase in fidelity of implementation data for literacy interventions is beneficial, this study indicates that more intervention studies related to behavioral interventions for students with emotional and behavioral disorders should focus on fidelity of implementation.

Wheeler, Baggett, Fox, and Blevins (2006) examined the fidelity of implementation of studies published between 1993 and 2004 using behavioral interventions with children under the age of 18 diagnosed with autism spectrum disorders. There were a total of 60 studies reviewed, and only 18% of them reported measures of fidelity of implementation, while another 5% reported monitoring fidelity of implementation but did not report the data. This review indicates that behavioral intervention fidelity of implementation data reporting is lower for children and adolescents with autism than the reporting rate for children without disabilities. Although fidelity of implementation is important in ensuring the changes in the dependent variable

are related to the intervention, about half of studies do not measure and/or report fidelity of implementation. This finding is troubling since, adequate fidelity of implementation is essential in delivering an appropriate and effective treatment for students. Therefore, fidelity of implementation should be measured and reported in both research and practice in order to ensure that students are receiving the best possible intervention.

Although research has indicated the importance of fidelity of implementation, the low number of reported fidelity of implementation in research may be related to the contradiction in the measurement and definition of fidelity of implementation. O'Donnell (2008) found that when looking at K-12 curriculum literature, the measurement and report of fidelity of implementation differed across types of studies. Fidelity of implementation in treatment delivery has been measured through adherence, exposure, quality or competence, and program differentiation (Schulte et al., 2009). Adherence measures the number of treatment components that were delivered, while exposure typically measures the frequency with which the treatment was implemented. Quality or competence measures the level of skill with which the treatment was implemented, and program differentiation measures the extent to which only the planned treatment components were delivered.

Although the definition and measurement of fidelity of implementation is inconsistent across studies, fidelity of implementation in the school psychology literature typically measures adherence (Schulte et al., 2009). Adherence is assessed through breaking the intervention into steps, and then calculating a percentage of the number of steps of the treatment protocol that were completed. Fidelity of implementation is usually

then reported as an overall average score of the fidelity across the entire intervention (Harn et al., 2013). Unfortunately, data does not currently exist to demonstrate the optimal level of integrity (Gresham, 2009).

Some research demonstrates that intervention effectiveness may be achieved with 60-80% fidelity of implementation (Harn et al., 2013), but 90% is generally considered high (Gresham, 2009). Additional research is needed in determining the necessary level of integrity to produce effectiveness in real world behavioral interventions (Fryling, Wallace, & Yassine, 2012). Because it is more difficult to maintain high fidelity of implementation in practice, it would be beneficial to know the level of fidelity of implementation necessary for an intervention to be effective. If research demonstrates the necessary level of fidelity of implementation, effort can be spent maintaining that level rather than expending resources to maintain a level that is higher than necessary.

In addition to the different ways that fidelity of implementation has been reported and assessed, fidelity of implementation has also been evaluated through many different means within the literature. When examining K-12 intervention studies, fidelity of implementation was measured through a variety of procedures that included: self-report surveys, interviews, permanent products, video and audiotapes, questionnaires, and classroom observation (O'Donnell, 2008). Self-report, permanent products, and direct observation are most commonly utilized to measure fidelity of implementation in consultation (Sheridan et al., 2009). Self-report involves the person providing the intervention reporting about their own fidelity of implementation, while permanent products are items produced during the intervention that are reviewed in order to

determine fidelity of implementation, and direct observation requires the researcher or consultant to assess the fidelity of implementation by observing and recording while the intervention is being delivered.

Although some data suggests that self-reports demonstrated higher fidelity of implementation than direct observations (Emshoff et al., 1987), Sheridan et al. (2009) found that self-reports, permanent products, and direct observations generated similar estimates of fidelity of implementation during consultation. Therefore, it is possible that utilizing any of these methods to measure fidelity of implementation is equally sufficient. Because estimates of fidelity of implementation are similar for these procedures, it is more likely that utilizing self-report and direct observation will provide adequate estimates of fidelity of implementation on their own.

The available literature related to fidelity of implementation of school-based interventions has demonstrated that higher fidelity of implementation is related to improved outcomes when implementing interventions in school settings. A statewide instructional support team was implemented in 500 school districts in Pennsylvania and the academic performance of the students who were utilizing the teams was examined (Kovaleski, Gickling, Morrow, & Swank, 1999). Students who were receiving support from the instructional support teams had higher academic performance when compared to schools that were not using instructional support teams only when the teams were implemented with high integrity. The students who were receiving support from instructional support teams that were implemented with low integrity did not demonstrate any differences in academic performance when compared to students in schools that were

not using instructional support teams. Telzrow, McNamara, and Hollinger (2000) examined the relationship between integrity of problem solving implementation and student outcomes for 227 schools. Although fidelity of implementation was moderate overall, integrity of problem solving implementation by multidisciplinary teams was significantly related to student outcomes for six of the eight problem solving components. Most of the problem solving components significantly affected student outcomes.

When five studies looking at the relationship between fidelity of implementation and K-12 curriculum interventions and outcomes were examined, all of the studies demonstrated that when the intervention was implemented with fidelity, there were statistically significantly higher outcomes (O'Donnell, 2008). A function-based intervention was utilized in a single case study of a third-grader exhibiting behavioral problems in order to examine the effects of fidelity of implementation on intervention effectiveness (Wood, Umbreit, Liaupsin, & Gresham, 2007). When the intervention was implemented with 100% fidelity, 91% of the intervals demonstrated on-task behavior compared to 9% of the intervals when any of the steps in the intervention were missed or implemented incorrectly. The level of fidelity of implementation has been demonstrated to influence intervention effectiveness in both large n and small n studies, so it is important to measure and maintain adequate fidelity of implementation in all intervention research and practice. Specifically, fidelity of implementation should be measured and reported in single subject studies in order to maintain adequate fidelity of implementation and encourage positive student outcomes.

The adequacy of the fidelity of implementation when the intervention is presented is influenced by the type of training provided to the person delivering the intervention. Therefore, it is important to provide training that will be the most beneficial in maintaining high fidelity of implementation. Four teacher dyads were utilized in order to examine the effects of direct and indirect training on fidelity of implementation during consultation (Sterling-Turner, Watson, & Moore, 2002). During the indirect training, the consultee received verbal information about the intervention and did not have contact with the consultant during implementation, and the direct training included: a verbal presentation of each intervention component, modeling, role-play, feedback, and verbal reinforcement for each component that was implemented correctly as well as corrective feedback when a component was implemented incorrectly. Fidelity of implementation was low for three of the four consultees after indirect training, and fidelity of implementation immediately increased for all four consultees following direct training. Direct training improved fidelity of implementation at a higher rate than indirect training.

In another study conducted by Sterling-Turner and colleagues, the effects of three different types of training on fidelity of implementation were examined (Sterling-Turner, Watson, Wildmon, Watkins, & Little, 2001). Sixty-four undergraduate participants were trained in one of three different ways. One training consisted of explaining the treatment procedures to the participants verbally and demonstrating examples of the target behavior, another training consisted of watching a videotape of a treatment session conducted by the researcher, and the third training consisted of providing verbal prompts, praise for correct implementation of components, and corrective feedback when

components were implemented incorrectly. Participants who received verbal prompts, praise, and corrective feedback implemented the intervention with the highest level of fidelity, while participants who watched a videotape implemented the intervention with the second highest level of fidelity, and those who received a verbal explanation implemented the intervention with the lowest fidelity of implementation. According to the results of these studies, training should be direct and include verbal prompts, praise, and corrective feedback in order to increase the likelihood that the intervention will be implemented with adequate fidelity of implementation.

In summary, fidelity of implementation is important in both research and practice in making valid conclusions related to the effectiveness of an intervention (Sanetti et al., 2011) and delivering an intervention that is appropriate and effective (Sheridan et al., 2009). Fidelity of implementation should be measured and reported in all intervention research as higher fidelity of implementation leads to a more effective intervention (Kovaleski et al., 1999; O'Donnell, 2008; Telzrow et al., 2000; Wood et al., 2007). In order to encourage adequate fidelity of implementation, direct training should be utilized that includes verbal prompts, corrective feedback and praise (Sterling-Turner et al., 2001; Sterling-Turner et al., 2002). As a way of increasing fidelity of implementation within the schools when providing intervention to students, performance feedback has been utilized (Solomon et al., 2012). Because adequate fidelity of implementation is important in providing an effective intervention, performance feedback can be useful in maintaining the fidelity of implementation essential to positive outcomes.

Performance Feedback

In the school consultation literature, performance feedback is defined as monitoring a target behavior and then giving feedback related to that behavior (Noell et al., 2005). The purpose of performance feedback is to improve the behavior of concern that is being monitored by the observer (Cavanaugh, 2013). Within school consultation, performance feedback is typically utilized in order to increase fidelity of implementation (Solomon et al., 2012). Performance feedback has been utilized to increase fidelity of implementation with many different types of classroom interventions, a variety of target behaviors, across multiple settings, and with a range of different methods.

Research suggests that performance feedback is an effective way to increase fidelity of implementation in the schools. For example, a meta-analysis of single-case research that utilized performance feedback in the schools suggests that after a new intervention has been implemented, performance feedback is moderately effective in increasing fidelity of implementation (Solomon et al., 2012). Fidelity of implementation was typically low after training, an average of 45.34%, and usually declined before performance feedback was utilized, with an average slope (-2.83) significantly lower than zero. When performance feedback was implemented, the tendency for fidelity of implementation to decline was deterred and performance feedback had an average moderate effect in increasing fidelity of implementation across studies. These findings suggest that performance feedback is generally effective in increasing fidelity of implementation during consultation. When performance feedback was implemented, fidelity of implementation ceased its decline and increased in most cases.

In another study, Noell et al. (2005) examined the influence of different forms of consultation feedback on fidelity of implementation with 45 elementary school teachers in six schools. Intervention was provided to 45 elementary students referred for consultation due to academic concerns, behavioral problems, or both. The teachers received one of three consultation conditions. The first condition consisted of weekly follow-up meetings between the teacher and consultant in which the consultant asked about the intervention implementation that week. The second condition was related to an emphasis on commitment and consisted of the consultant providing a social influence procedure to the teacher before the implementation began that focused on emphasizing five points that were meant to increase the relationship between their commitment to provide the intervention and actually implementing the intervention. The third condition was a performance feedback procedure in which the consultant held a brief meeting with the teacher to provide graphical feedback related to student behavior and fidelity of implementation. The performance feedback condition was associated with the highest level of fidelity of implementation when compared to the other two conditions, and there was no statistically significant difference between the weekly follow-up meetings and the emphasis on commitment conditions. The student outcomes obtained in the study were also significantly better for the performance feedback condition compared to the other two conditions. This study indicates that performance feedback may be superior to other forms of consultation feedback in increasing fidelity of implementation in the schools.

Most of the performance feedback literature focuses on increasing fidelity of implementation with general and special education teachers who are in the field. There is

little research on the use of performance feedback with paraprofessionals. In one study, Leblanc, Ricciardi, and Luiselli (2005) examined the use of performance feedback to enhance discrete trial instruction by paraprofessionals. Three newly employed paraprofessionals, who worked with students diagnosed with autistic disorder, were utilized in the study. The consultant reviewed the discrete trial instructional skills checklist of the ten skills with the paraprofessionals prior to receiving performance feedback. Performance feedback consisted of an 8-10 minute meeting directly after sessions were completed (Leblanc et al., 2005). During the meeting, the paraprofessional received verbal praise for the skills implemented correctly, clarification and verbal direction for skills that were implemented incorrectly, and any questions that the paraprofessional had were answered. Fidelity of implementation increased from less than 50% at the time of baseline to 90-100% with performance feedback, and gains were maintained for up to 11 weeks after training was discontinued. Performance feedback greatly increased fidelity of implementation and the gains were maintained as the paraprofessionals had learned and become proficient at the ten skills of concern. Paraprofessionals were able to provide the intervention with adequate fidelity of implementation when performance feedback was utilized.

Because many studies examining performance feedback utilize direct observation in order to record fidelity of implementation, it is possible that observer reactivity could be leading to increased fidelity of implementation rather than performance feedback. Codding, Livanis, Pace, and Vaca (2008) examined whether observer reactivity was related to fidelity of implementation of class wide behavior plans. The study utilized

conditions in which the observer was either present or absent in the classroom. Performance feedback was provided during both conditions and consisted of the teacher receiving verbal feedback following sessions, in which praise was given for steps completed correctly and corrective feedback was given for steps that were completed incorrectly. There was no difference between the observer present and observer absent conditions, and fidelity of implementation improved for all teachers. This finding indicates that performance feedback was responsible for the increase in fidelity of implementation rather than observer reactivity. These studies demonstrate that performance feedback can be an important tool in increasing fidelity of implementation in the classroom and encouraging the use of an effective and appropriate intervention.

Although most studies utilize daily performance feedback, weekly performance feedback has also been examined. The use of weekly performance feedback in increasing fidelity of implementation was examined utilizing four elementary general education teachers (Mortenson & Witt, 1998). The teachers were trained to utilize a reinforcer-based classroom intervention with students who were exhibiting "can't do" academic problems in the classroom. After training, performance feedback was implemented when fidelity of implementation fell below 70%. Weekly performance feedback included a 5-7 minute meeting between the teacher and the consultant where the consultant provided information on student performance and teacher fidelity of implementation, provided positive feedback and corrective feedback as necessary, answered questions, obtained verbal commitment to the intervention by the teacher, prompted the teacher to continue returning daily summaries, and prompted the teacher to meet again the next week. Three

of the four teachers increased their fidelity of implementation when performance feedback was utilized and there was improvement in student academic performance. Performance feedback provided on a weekly basis may be as effective as performance feedback that is provided daily. Therefore, it may not be imperative to provide daily performance feedback when consulting in the schools.

There are different methods with which to provide performance feedback demonstrated in the literature. Verbal performance feedback, which involves providing verbal support and information, is one form of performance feedback that has been utilized in order to increase fidelity of implementation in the schools. McKenney et al. (2013) examined the influence of performance feedback on fidelity of implementation related to functional analysis procedures. Three general education middle school teachers were utilized to provide functional analysis based interventions to students with behavioral problems. Teachers received training and then received performance feedback after the completion of each session in which a consultant verbally provided recognition for steps implemented correctly and corrective feedback for steps done incorrectly. Two of the three teachers' fidelity of implementation increased when training and performance feedback were utilized. Verbal performance feedback was useful in increasing fidelity of implementation in additional to training.

The effects of verbal performance feedback on fidelity of implementation were also examined in relation to behavioral consultation (Jones et al., 1997). Three middle school teachers in a residential treatment facility provided intervention to students who were referred due to low levels of academic engagement. Consultation consisted of

discussing the intervention with the teachers and providing recommendations to increase positive consequences for on-task-behavior, to ignore off-task behavior that was not disruptive, and to continue the use of the regular classroom behavior management plan for disruptive behavior. Performance feedback was provided if low levels of fidelity of implementation were observed after consultation and consisted of verbally reviewing treatment recommendations, and informing the teacher that daily observational feedback would be provided after each observation. The addition of performance feedback increased fidelity of implementation from 9-37% after consultation alone to 60-83%. Performance feedback in addition to consultation greatly increased fidelity of implementation.

Graphical performance feedback is another form of performance feedback that has been utilized in order to increase fidelity of implementation. Graphical performance feedback consists of providing a visual display of fidelity of implementation and student performance data as well as verbal feedback regarding the information in the graphs (Casey & McWilliam, 2008). The relationship between teacher-directed behavioral consultation and fidelity of implementation was examined with a middle school teacher in relation to class wide behavior support (Mautone, Luiselli, & Handler, 2006). Behavioral consultation was provided through a meeting with the teacher following each observation in which the teacher's fidelity of implementation was discussed, graphical feedback was provided, and the teacher's questions were answered. The behavioral consultation provided to the teacher was associated with increased fidelity of implementation and improved student behaviors. Performance feedback provided

additional assistance to the teacher beyond the initial training and improved her implementation of the intervention as well as student outcomes.

Four general education elementary teachers were utilized in examining the relationship between the Classroom Check-Up and visual performance feedback (Reinke, Lewis-Palmer, & Merrell, 2008). Classroom Check-Up, a class wide consultation model, emphasizes class wide modification and motivational interviewing strategies, and consists of an assessment of the classroom, feedback to the teacher related to the assessment, development of a menu of options to encourage positive classroom outcomes, an opportunity to choose interventions for implementation, and teacher self-monitoring of fidelity of implementation. Visual performance feedback consisted of providing daily graphical feedback related to student behavior and teacher fidelity of implementation. Teachers' use of classroom management strategies increased when Classroom Check-Up plus visual performance feedback were utilized, and problem behavior decreased in the classroom. Visual performance feedback increased fidelity of implementation as well as improved student outcomes.

Graphical performance feedback has also been utilized to increase fidelity of implementation of academic interventions. Casey and McWilliam (2008) utilized twenty-one lead and assistant teachers in order to examine the use of graphical feedback on the teachers' utilization of incidental teaching or basing the student-teacher interaction on the child's current engagement in order to encourage more complex behaviors and increase participation. The teachers first received information about utilizing incidental teaching with the preschoolers with disabilities in their classrooms. Graphical feedback was then

provided each day that demonstrated the teachers' use of incidental teaching during the previous day. The use of incidental teaching increased for all teachers when graphical feedback was given. More specifically, fidelity of implementation related to incidental teaching increased and teachers were implementing the intervention as intended.

In another study, graphical performance feedback was utilized in order to examine its influence on teacher intervention implementation (Noell, Witt, Gilbertson, Ranier, & Freeland, 1997). Three general education teachers each implemented a reinforcement based intervention with one elementary student who they had referred for academic performance deficits. As is common in intervention research, after the intervention was explained to each teacher by the consultant, fidelity of implementation declined after two to four days (Noell et al., 1997). Performance feedback was then provided daily to the teachers in the form of graphical feedback related to student outcome and teacher implementation in a 3-5 minute meeting with the consultant. Graphical performance feedback improved fidelity of implementation for all teachers and two of the three students' academic performance also improved (Noell et al., 1997). That is, teachers provided the intervention as intended when graphical performance feedback was utilized and student academic outcomes benefitted. These studies demonstrate that graphical performance feedback is effective in increasing fidelity of implementation in the classroom, and produces a higher level of fidelity of implementation than other forms of feedback (Noell et al., 2005). Graphical performance feedback may be more effective than other forms of performance feedback because it usually provides visual information as well as verbal feedback and support from the consultant (Casey & McWilliam, 2008).

In summary, performance feedback is generally utilized in order to increase fidelity of implementation in school consultation, and has been demonstrated through meta-analysis to be moderately effective in increasing fidelity of implementation during consultation (Solomon et al., 2012). Almost all of the literature related to performance feedback has focused on increasing fidelity of implementation with general and special education teachers. Only one study demonstrated that performance feedback can also be utilized to increase fidelity of implementation with paraprofessionals (Leblanc et al., 2005). Studies have also shown that graphical performance feedback is better at increasing fidelity of implementation than other methods of consultation feedback (Noell et al., 2005). Future research related to performance feedback should focus on further demonstrating the utility of graphical performance feedback as well as increasing the literature related to the utilization of performance feedback with paraprofessionals.

Paraprofessionals

Paraprofessionals may obtain a variety of positions within the schools, but most work primarily with students who are receiving special education services and may provide physical or academic assistance, or behavioral management based on student need (Minnesota Department of Education, 2013). Paraprofessionals are essential in assisting students receiving special education services with avoiding social or academic failure, possible risks to their health and safety, and/or causing injury to others (French & Chopra, 1999). They are also beneficial in providing more individualized one-on-one services for students with special needs as it is impossible for general and special education teachers to work one-on-one with all students throughout the school day

(Simpson, 2004). In fact, teachers report finding paraprofessionals indispensable in providing supports to students in the classroom (Wolery, Werts, Caldwell, Snyder, & Liskowski, 1995), and parents also report finding paraprofessionals valuable because they offer their children individualized support that would not be available without the use of paraprofessionals (Werts, Harris, Young, Tillery, & Roark, 2004). Paraprofessionals provide a necessary and important service in working with students with special needs within the classroom.

Although paraprofessionals play a vital role in the education of the students with whom they work, there are many controversies associated with the use of paraprofessionals in the schools. Many have indicated their concern regarding the training, competencies, and roles that paraprofessionals should partake in when working with students with disabilities. In a survey, paraprofessionals indicated that their job responsibilities included: providing academic and social skills instruction, making modifications to the curriculum, and student behavior management (Marks, Schrader, & Levine, 1999). Paraprofessionals reported feeling like they were responsible for managing student behaviors so that the classroom was not disrupted. They also took on tutoring roles during a part of the school day, and felt that they needed to provide daily academic activities and modifications to classroom activities because relying on general education teachers to do these things was not feasible.

Another survey reported that special education paraprofessionals deliver 83% of special education instruction to students, while special educators deliver only 17% of special education instruction to students with disabilities (Suter & Giangreco, 2009). A

review of the literature related to paraprofessional support of students with disabilities indicates that paraprofessionals are expected to participate in a variety of roles and these roles can at times be inappropriate (Giangreco, Edelman, Broer, & Doyle, 2001). The students with the most complex learning or behavioral difficulties are often assigned to paraprofessionals who do not have adequate training, support, or supervision (Giangreco et al., 2001).

Paraprofessionals from 77 elementary, middle, and high schools were surveyed regarding their core competency knowledge, job-related responsibilities, contexts in which they work, perceived ability to perform the required tasks, and their need for more training (Carter et al., 2009). The paraprofessionals reported working mostly with students diagnosed with autism (79.2%), cognitive disabilities (74.8%), emotional disturbance (74.1%), learning disabilities (82.4%), and 59.7% speech/language. Approximately 28% reported working primarily in special education, 33% reported working primarily in general education, and 39.3% worked an equal amount in both settings. Of these paraprofessionals, 97% reported providing one-on-one instruction daily or weekly, 85.3% reported providing small group instructional support, and 79.4% reported implementing behavior management programs. Paraprofessionals were most likely to work with students with disabilities, and almost all of them provided one-on-one or small group instruction and/or behavioral intervention.

Paraprofessionals are an integral part of the school system and provide necessary support to students with disabilities. Many schools have looked at the use of paraprofessionals to implement a variety of interventions with students. Given the

concern regarding the competencies, training needs, and negative impacts that paraprofessionals have on students, it is important to evaluate the use of paraprofessionals in the delivery of interventions to students in the schools. Of specific concern related to the implementation of interventions for students are the delivery rates of instruction and behavior management programs and the percentages of paraprofessionals who report needing additional training in these areas. This study examined employing paraprofessionals to implement behavioral interventions with students in the schools, and the effectiveness and usefulness of paraprofessionals for this purpose.

Although paraprofessionals are essential in providing support to students and are often utilized, there is concern that the use of paraprofessionals has a negative impact on students and schools as a whole. In a survey of young adults with intellectual disabilities who had utilized paraprofessionals during their schooling, participants reported that when they were in general education classrooms, the paraprofessional was most often the person who interacted with them and acted as their primary teacher (Broer, Doyle, & Giangreco, 2005). A majority of these participants reported that the presence of a paraprofessional caused embarrassment, fear, rejection, stigmatization, loneliness, and exclusion.

Paraprofessionals reported spending about 86% of their time within 3 feet of their assigned student throughout the school day, which is a cause for concern regarding receiving an experience similar to other students (Giangreco & Broer, 2005). In a single case study, of 32 interactions that the subject had with peers, only three of them took

place when the paraprofessional was present (Malmgren & Causton-Theoharis, 2006). The prominence of the concerns regarding paraprofessionals has led to the construction of a screening tool to assess a school's overreliance on and inappropriate use of paraprofessionals (Giangreco & Broer, 2007). The tool is meant to assist schools in determining whether there are problems in the way that paraprofessionals are utilized in relation to proximity or isolation of the student, engagement with special or general education teachers, paraprofessional autonomy or dependence on paraprofessionals, and instructional roles and use of resources.

Although there are few studies examining the effectiveness of paraprofessionals implementing intervention in the schools, paraprofessionals who work in the schools are providing various forms of intervention to the students with whom they work. Maag, Vasa, and Reid (1998) found that paraprofessionals who worked with students with emotional and behavioral disorders in the schools reported most frequently providing academic assistance, teaching and modeling appropriate behavior, and utilizing positive reinforcement as interventions. They reported writing incident reports, restraining students, and supervising in-school suspension as the interventions that they participated in the least often. Paraprofessionals are currently delivering interventions to the students who they support. Because the research demonstrates that paraprofessionals are currently providing intervention to students in the schools, it is important that the fidelity of implementation in which interventions are being delivered is assessed and adequate fidelity of implementation is maintained in order to encourage effective and appropriate interventions.

Paraprofessionals are providing intervention in the schools, so it is important to examine whether paraprofessionals can be trained to effectively deliver interventions to the students with whom they work. Bessette and Wills (2007) conducted a study where a paraprofessional was trained to conduct a functional analysis and then implement a function-based intervention. The paraprofessional had no prior experience with behavior management or functional behavioral assessments or analysis. A pre-test to post-test comparison demonstrated that the paraprofessional's knowledge of the functional analysis procedures increased from 45% to 90% after training. The paraprofessional was trained to implement the play, attention, and escape conditions of the functional analysis that were determined by a prior interview by reading through a study guide and then reviewing with the researcher.

After the behaviors were demonstrated to be maintained by attention, researchers provided the paraprofessional with a written description of the intervention and an example script as the paraprofessional had earlier been trained to ignore inappropriate and respond to appropriate behaviors (Bessette & Wills, 2007). Average percentage of correct responses of the paraprofessional during the functional analysis were 91.6% for attention, 94.9% for escape, and 99.6% for play, and the paraprofessional had an average of 96.6% correct responses during the intervention condition. The paraprofessional was able to implement the functional analysis and the intervention with high fidelity, and the student's problem behaviors were decreased when the intervention was implemented. More specifically, the paraprofessional adequately implemented the functional analysis and provided an effective intervention that led to positive outcomes.

A brief training procedure was utilized to promote the generalization of discrete trial teaching skills in paraprofessionals (Bolton & Mayer, 2008). Three newly employed paraprofessionals participated in a three hour session on discrete trial implementation. An introduction was given, lecture and demonstration were given for each of the seven steps of discrete trial instruction, general case instruction demonstrated and discussed 10 different discrete trial programs, and then the paraprofessionals were asked to practice with feedback given. Each paraprofessional needed to achieve 98% fidelity before exiting the training. Baseline implementation fidelity ranged from 50-63% while fidelity for the 15 weeks following training remained mostly above 90%. These studies begin to suggest that paraprofessionals can easily and adequately be trained to implement interventions with students with fidelity. The few studies that have focused on training paraprofessionals to implement interventions with students in the schools have demonstrated positive results. These studies show that paraprofessionals can be trained to implement interventions with high fidelity.

To summarize, very few studies focus specifically on the effectiveness of paraprofessionals in the schools, and the little evidence that exists is not conclusive. There are studies that focus on training paraprofessionals to implement interventions with integrity, and the findings of these studies have indicated that paraprofessionals can deliver interventions with high integrity. Paraprofessionals currently implement interventions with the students who are in the most need of assistance (Minnesota Department of Education, 2013), and it is important to examine whether or not paraprofessionals can be effective with these students.

One review demonstrated that paraprofessionals can implement cognitive-behavioral therapy to treat depressive and anxiety symptoms in clients effectively and the outcomes are comparable to the outcomes of patients who were treated by professionals (Montgomery, Kunik, Wilson, Stanley, & Weiss, 2010). Although this study focused on paraprofessional delivery of psychotherapy and not paraprofessional delivery of interventions in the schools, it adds to the evidence that paraprofessionals can be trained to deliver interventions as effectively as professionals. Future research should focus on examining whether paraprofessionals can effectively deliver interventions to students in the schools.

Another study compared the effectiveness of one-to-one embedded instruction within a general education classroom and one-to-one massed practice instruction in a special education classroom (Jameson, McDonnell, Johnson, Riesen, & Polychronis, 2007). A special education teacher provided instruction to two students, while the paraprofessional provided instruction to the other two students in an alternating treatments design. The special education teacher and the paraprofessional received only a half hour of training before implementing the intervention. Although there were differences in effectiveness of the interventions between students, both interventions effectively improved the target skills of all four students.

The paraprofessional was equally effective as the special education teacher in delivering the different forms of instruction and the fidelity of implementation ranged from 97 to 100% (Jameson et al., 2007). With a brief half-hour training session, a paraprofessional and a special education teacher implemented two different instructional

methods with effectiveness and high fidelity. In both the review and the study described above, paraprofessionals were able to implement interventions with equal effectiveness to professionals. Paraprofessionals often provide one-on-one or small group support to students in the schools, while teachers often have larger case loads.

If paraprofessionals can provide intervention with equal effectiveness and integrity to special and general education teachers, it may be useful and efficient to utilize paraprofessionals to deliver interventions. Paraprofessionals could implement interventions that require a short training to students, while special and general education teachers provide more complex intervention and instruction. The use of paraprofessionals as well as special and general education teachers to provide behavioral intervention to students may allow more students to be serviced. In addition, research should focus on whether paraprofessionals can provide behavioral interventions with an adequate level of fidelity of implementation in order to deliver supplementary intervention to students in special education to the intervention provided by the special education teacher as well as encourage positive student outcomes.

Purpose of the Present Study

Fidelity of implementation is essential in order to draw valid conclusions regarding the effectiveness of the intervention (Sanetti et al., 2011). Research has demonstrated that higher fidelity of implementation is associated with better student outcomes (Kovaleski et al., 1999; O'Donnell, 2008; Telzrow et al., 2000; Wood et al., 2007). In addition, performance feedback has been shown to be an effective technique to increase the fidelity of implementation of interventions delivered in the schools.

However, a vast majority of the literature related to fidelity of implementation and performance feedback has focused on special and general education teachers. Therefore, this study focused on expanding the literature in these areas to include paraprofessionals. This extension was necessary because paraprofessionals provide interventions to students with the highest level of academic and behavioral need.

As mentioned earlier, studies have demonstrated that graphical performance feedback has been effective in increasing fidelity of implementation with both academic and behavioral interventions in the schools (Casey & McWilliam, 2008; Mautone et al., 2006; Noell et al., 1997; Reinke et al., 2008). Performance feedback has also been effective when provided to teachers on either a weekly or daily basis (Mortenson & Witt, 1998). Graphical performance feedback has often been provided in person or through placing it in the teacher's box or folder. The current study expanded the existing literature base by providing graphical performance feedback through email, which may be more feasible when practicing consultation in the field. Performance feedback was also provided less than every school day, as research has demonstrated that this is effective, and it is more realistic in the work setting.

Paraprofessionals play an important part in the assistance necessary for students and could be a significant asset in schools. Paraprofessionals are available within the classroom to provide more intensive interventions to the students with whom they work, while special and general education teachers focus on their other responsibilities associated with the classroom and provide more specialized instruction as necessary. Paraprofessionals are consistently part of school staff and their ability to provide

intervention to students is largely underutilized. Research suggests that paraprofessionals can be trained to provide individualized intervention to students and could play an integral part in implementation of interventions with students in the schools.

The purpose of this study focused on whether paraprofessionals can provide intervention to students with adequate fidelity of implementation when graphical performance feedback is provided through email. It was hypothesized that fidelity of implementation would be highest when performance feedback was utilized in comparison to the Behavioral Intervention phase. It was also hypothesized that the paraprofessionals in the study would be able to provide intervention to students with high fidelity of implementation when graphical performance feedback through email was utilized

Chapter III - Methodology

Method

Participants

There were a total of five paraprofessionals who gave consent to participate in the study, and five students for whom parental consent was received for participation in the study. One the paraprofessionals did not participate in the study because she or he was no longer employed by the school district when data collection began. Another paraprofessional did not participate in the study because the target student was deemed to no longer need one-on-one paraprofessional services. One student who did not participate in the study moved from the district prior to start of data collection, while the another student who did not participate in the study was deemed to no longer need one-on-one services from a paraprofessional.

Three dyads of paraprofessionals and students participated for the duration of the study. Each dyad consisted of one paraprofessional and the student with whom the paraprofessional worked with in the general education setting. The paraprofessionals were nominated for this study because either administration or the supervising special education teacher sought assistance in managing the behaviors of their assigned student. The three participating students were chosen because they were exhibiting behavioral problems in the classroom and the paraprofessional had the ability to work with them one-on-one for at least 30 minutes per day within the general education setting. The paraprofessionals were informed that the purpose of the study was to examine the utility of performance feedback in increasing the level that an intervention is delivered in the

prescribed manner to students in the classroom by paraprofessionals. Before the study began, informed consent was obtained from each paraprofessional (Appendix A) and parental consent (Appendix B) and student assent (Appendix C) were obtained for each student.

Dyad A. Paraprofessional A was a female who had been a paraprofessional for approximately 1 year part-time and 1 year full-time within a kindergarten classroom. She had completed some college credits, and received Crisis Prevention Institute training from her current employer, which focuses on providing training in managing disruptive and assaultive behavior in respectful, safe, and noninvasive ways (Crisis Prevention Institute, 2015). She had no other training related to behavioral management. She did not have past experience working with behavioral problems. Student A was a male, kindergarten student who was receiving special education services. The student was referred to the consultant by the school's administration for disruptive behaviors in the classroom that included: talking out or yelling, bothering his peers, not following directions, and emotional outbursts that resulted in removal from the classroom. No further student data was available due to lack of approval from the IRB. The paraprofessional was assigned to the classroom, but also worked one-on-one with the student most of the school day.

Dyad B. Paraprofessional B was a male who had been a paraprofessional for approximately 2 years and had worked with kindergarten through 5th grade students. He had earned some college credits, and received Crisis Prevention Institute training from his current employer, but had no other training related to behavioral management. He had

past experience working with students who were violent and emotional. Student B was a male, first grade student who was receiving special education services. The consultant was referred by administration to work with a special education teacher in the district. The special education teacher referred the student to the consultant for off-task behaviors in the classroom that included: leaving his desk to talk to his peers or wander around the room and doing unrelated activities during instructional time. There was no further student data available due to lack of approval from the IRB. The paraprofessional was assigned to work one-on-one with the student for most of the school day.

Dyad C. Paraprofessional C was a female who had been a paraprofessional for approximately 1 year and had worked with kindergarten through 3rd grade students. She had some college credits, and had received Crisis Prevention Institute training from her current employer as well as restraint training and behavior prevention training previously. She had past experience working with behavioral problems when working with college aged individuals with severe mental and physical disabilities and when working in an elderly residential setting. Student C was a male, third grade, special education student. The consultant was referred to work with a special education teacher by district administration. The special education teacher referred the student to the consultant for off-task behaviors in the classroom that included: playing or fidgeting with unrelated materials, putting his head down on his desk, or talking to his paraprofessional about unrelated topics during instruction. There was no further student data available due to lack of approval from the IRB. The paraprofessional was assigned to work one-on-one with the student for 30 minutes per day in the general education setting.

Setting

Data were collected in two different elementary schools in two different districts in Minnesota. Dyad A was conducted in a rural district in northern Minnesota with a total population of approximately 8,000. The student population is approximately 450 with about 94% of the students identifying as Caucasian. Dyads B and C were conducted in an urban district in southwest Minnesota with a total population of approximately 45,000. The student population is approximately 480 with about 89% of the students identifying as Caucasian.

Materials

Preliminary assessment.

Paraprofessional Demographics Questionnaire (Appendix D). The Paraprofessional Demographics Questionnaire was developed by the consultant in order to obtain basic background information about the paraprofessional. The questionnaire was completed by the paraprofessional at the beginning of the study. It contains eight questions that inquire about the paraprofessionals' education background, prior paraprofessional experience, experience with behavioral problems, and trainings received related to behavior management.

Functional Assessment Checklist for Teachers and Staff (Appendix E; FACTS; March et al., 2000). The FACTS is a structured interview that is completed with teachers or staff members in order to gain knowledge about the student's target behavior. The interview is utilized in order to identify the student's problem behaviors, identify the likelihood of problem behaviors throughout the school day, define the problem behaviors,

identify what happens before and after the problem behaviors occur, and identify a possible function of the behavior. A review of 10 studies using the FACTS demonstrated that there is evidence of strong test-retest reliability, strong evidence of interobserver agreement, moderate to strong evidence of convergent validity with direct observation and functional analysis, strong evidence of treatment utility, and strong evidence of social validity (McIntosh, et al., 2008).

FBA Observation and Summary Form (Appendix F; FBA-OSF; Filter & Alvarez, 2012). The FBA-OSF is an observation form that is utilized when observing specific identified student target behaviors. The observation is utilized in order to track the number of times the target behavior occurs during the observation as well as the antecedents that occur before the target behavior and the consequences that occur after the target behavior. The data can then be utilized in order to identify the most likely function(s) of the target behaviors.

Fidelity of implementation.

Primary assessment.

Observer Fidelity of Implementation Checklist (Appendix G; OFIC). The OFIC is a fidelity of implementation checklist that was developed by the consultant in order to measure the paraprofessionals fidelity of implementation during direct observation. The checklist identifies the steps of the intervention, and the observer reports whether or not the step took place or what percentage of the time the step took place during the intervention. The observed number of points is then added and divided by the total number of points in order to derive the percentage of fidelity of implementation observed.

Secondary assessment.

Paraprofessional Fidelity of Implementation Checklist (Appendix H; PFIC). The PFIC is a fidelity of implementation checklist that was developed by the consultant in order to measure the paraprofessionals fidelity of implementation through self-report. The checklist identifies the steps of the intervention, and the paraprofessional reports whether or not the step took place or what percentage of the time the step took place during the 20-minute intervention. The self-reported number of points is then calculated by the consultant and divided by the total number of points in order to derive the percentage of fidelity of implementation reported by the paraprofessional for the day.

Student behavior.

Primary assessment.

Direct Observation Progress Monitoring System (Appendix I; DOPMS; Filter & Alvarez, 2012). The DOPMS is an observation form that is utilized to measure student target behavior. The observation form utilizes momentary time sampling in which the observer records whether or not the student is engaging in the target behavior for one second every ten seconds for a twenty minute time period. The number of intervals with target behavior are then calculated and divided by the total number of intervals in order to calculate the percentage of intervals with target behavior.

Secondary assessment.

Direct Behavior Rating (DBR) Form – Fill-in Behaviors (Appendix J; Chafouleas, Riley-Tillman, & Christ, 2010). DBRs are utilized as a tool in which a brief rating of a target behavior is recorded after an observation period, and can be utilized to

record one behavior, multiple behaviors, or a broad set of behaviors (Chafouleas, Riley-Tillman, & Jaffery, 2011). DBRs can be utilized in order to record the percentage of total time during the intervention period that the student displayed the target behavior. When 20 behavioral consultation cases with elementary participants were examined, results indicated that DBRs demonstrated sensitivity to behavior change within the classroom and could be utilized to evaluate response to intervention (Chafouleas, Sanetti, Kilgus, & Maggin, 2012).

Assessment, Training, and Dependent Measures

Preliminary assessment. An assessment was conducted to provide information related to the primary category of the behaviors of concern, when the behaviors are most frequent, as well as possible antecedents, consequences, and functions of the behaviors. The FACTS was utilized with each paraprofessional or with the student's special education teacher if the paraprofessional had not worked with the student prior to the study. The FBA-OSF was used during a direct observation of the behavior of most concern, its antecedents, and consequences during a time in which the reported behavior frequently occurred. This information was utilized in order to individualize the behavioral intervention provided by the paraprofessional.

The behavioral intervention took place in the student's general education classroom on a consistent schedule for 20 minutes each day. The standard behavioral intervention protocol was individualized based on the behaviors of concern and the possible functions of the behaviors. The intervention protocol for each Dyad is described in Appendices K, L, and M. Although the intervention continued to take place in the

general education setting, the activities in which the students in Dyads B and C were participating in during the final weeks of the study did not require the use of a break. Because of this change, the intervention protocol for Dyad B was modified during the feedback phase and the intervention protocol for Dyad C was modified prior to the feedback phase due to the paraprofessional's concerns about providing the intervention as described.

Training. A short training session including instruction, modeling, coaching, praise, and corrective feedback related to the behavioral intervention as well as the fidelity of implementation checklist and DBRs (Chafouleas et al., 2010) occurred during this phase. The training session was developed by the consultant to be as practical as possible in order to mirror a real-life consultation session, and is further described in Appendix N. The paraprofessional practiced with a consultant acting as the student until the paraprofessional received 100% fidelity of implementation during three consecutive practice scenarios. Each practice scenario lasted until the paraprofessional had completed all of the steps of the intervention at least one time. A consultant provided the training individually to the paraprofessionals during the school day when time was available, over one or two sessions.

Paraprofessional A required five practice scenarios in order to receive 100% during three consecutive practice scenarios and implemented intervention steps correctly an average of 92.9% of the time. Paraprofessional B required five practice scenarios the meet the training criterion (M = 96.4%). Paraprofessional C required four practice scenarios in order to obtain 100% during three consecutive practice scenarios. Training

was interrupted due to a scheduling conflict after the first scenario during the first session, so the last three scenarios took place consecutively in one session (M = 100%). The trainings lasted approximately 30-45 minutes total. The training session for Paraprofessional A was conducted at a table in the hallway outside of the classroom, while training sessions for Paraprofessionals B and C took place at a table on the side of the special education classroom.

Fidelity of implementation. The primary dependent measure was the fidelity with which the paraprofessionals implemented the intervention. A fidelity of implementation checklist was developed by the consultant for both the observers and for the paraprofessional to self-report, and included all of the steps that should be completed during the individualized behavioral intervention (Appendix G; Appendix H). Fidelity of implementation was assessed daily through self-report of the completion of the steps of the intervention when the paraprofessional checked off each of the steps that he or she completed on the checklist. Direct observation was also utilized two times per week in which the consultant or another observer observed the session and checked off the steps of the intervention that were completed by the consultee on the fidelity of implementation checklist. The daily percentage of fidelity of implementation was calculated for both direct observation and self-report by dividing the number of steps completed by the total number of steps and multiplying by 100.

Treatment effectiveness. For Student A, disruptive behaviors were identified as the target behavior. These were defined as engaging in behavior that is disruptive to the learning environment or bothersome to peers. Off-task behaviors were the behaviors of

concern for both Student B and Student C. They were defined as engaging in behavior that is unrelated to the activity taking place in the learning environment. The targeted behaviors for each student are further described in Appendices O, P, and Q. Each student's behavior was reported daily by the paraprofessional using the DBRs (Chafouleas et al., 2010) at the end of each session, and was observed for 20 minutes two times per week. DBRs were utilized by the paraprofessionals in order to record the percentage of total time that the student displayed the behavior(s). At the end of the intervention session, the paraprofessional made a mark on a line on the DBR that represented the estimated percentage of time that the student displayed the target behavior during the session. The percentage of problem behavior during direct observations was calculated by dividing the intervals with problem behavior by the total number of intervals and multiplying by 100. The daily percentage of problem behavior was assessed by evaluating the approximate report of the paraprofessional on the DBR.

Experimental Design and Procedures

An ABC with replication design was utilized to measure the effect of performance feedback on paraprofessionals' fidelity of implementation. The ABC with replication design included: baseline, behavioral intervention, and behavioral intervention plus performance feedback. An AB design includes a baseline (Phase A) in which a natural measure of the behavior occurs before any changes are made, then the intervention is introduced in phase B (Barlow, Nock, & Hersen, 2009). In the current study, phase C was implemented after phase B and included the addition of performance feedback. The ABC design was replicated across three paraprofessionals. Harris and Jenson (1985) reported

that an AB design with replication provides experimental control that is comparable to a multiple baseline across participants design when the participants are not within the same setting. The phase should be changed when at least three stable data points have been collected or there is a trend in the opposite direction than expected. Fidelity of implementation was the primary area of investigation and direct observation data were the primary measure of fidelity of implementation, so changes in condition were based on the data obtained through direct observation of fidelity of implementation.

Baseline (A). Prior to training the paraprofessional on the intervention, the student's behavior was measured utilizing a 20-minute direct observation completed by the consultant and/or an observer that occurred as consistently as possible two times per week. The paraprofessionals were asked to respond as they usually would in relation to student behavior. Fidelity of implementation and student behavior data were collected through direct observation during the baseline. The paraprofessionals had not yet been trained on data collection, so they did not complete the fidelity of implementation checklist or DBR data during this phase.

Behavioral intervention (B). During this phase, the paraprofessionals implemented the intervention without feedback or support from the consultant. The paraprofessionals completed the fidelity of implementation checklist and DBRs daily during this phase. Fidelity of implementation and student behavior data were collected both by the paraprofessional daily and through direct observation completed by the consultant and/or an observer twice per week.

Behavioral intervention plus performance feedback (C). Performance feedback was given to the paraprofessional two times per week (following each observation) through email as a graphic display and a short summary of both fidelity of implementation and student behavior based on direct observation data. The paraprofessionals were asked to respond to the email from the consultant and answer a short question in order to make sure that feedback was received and examined prior to the paraprofessional providing the intervention the next day. The paraprofessionals emailed the consultant with the correct answer to the short question 100% of the time after the performance feedback emails were sent. A sample of the email sent to the paraprofessionals after each observation is described in Appendix R. Fidelity of implementation and student behavior data were collected by the paraprofessional through the fidelity of implementation checklist and DBRs and through direct observation during this phase.

Performance Feedback Fidelity of Implementation

The adherence to the performance feedback email by the consultant was recorded for all of the feedback sessions. The consultant sent the performance feedback email to the paraprofessional prior to 4pm on the day the direct observation was completed for all sessions during the feedback phase for all three dyads. The fidelity of implementation of performance feedback was calculated by dividing the number of sessions in which the performance feedback email was sent to the paraprofessional before 4pm by the total number of sessions in which performance feedback was provided. The fidelity of

implementation of performance feedback was 100% for Dyads A, B, and C during the performance feedback phase of the study.

Interobserver Agreement

In order to measure interobserver agreement (IOA), two observers collected data on fidelity of implementation and student behavior. Observers included three graduate students and two consultants who had taken coursework related to direct observation. In addition, a Title I teacher with previous experience collecting school wide data participated as an observer. All observers were trained on the fidelity of implementation checklist and the observation of student behavior by one of the consultants prior to collecting data. The training consisted of observing an online video of a math lesson in an elementary classroom for 10 minutes, and utilizing momentary time sampling with 10-second intervals to record the specific defined target behavior of one of the students. Observers were cleared to collect data after they had demonstrated a 95% interobserver agreement with the consultant during two consecutive practice sessions. The percentage of interobserver agreement was calculated as the number of instances of agreement divided by the agreements plus disagreements and multiplied by 100.

Overall, IOA data were collected during 36.2% of all sessions throughout all conditions. The average IOA for fidelity of implementation across all sessions was 97.1% and ranged from 63% to 100%. The average IOA for student behavior across all sessions was 97.8% and ranged from 93.3% to 100%.

Dyad A. Interobserver agreement was collected during 38.9% of sessions. The average IOA for fidelity of implementation was 100%, and the average interobserver agreement for student behavior was 99.3% with a range from 98.3% to 100%.

Dyad B. Interobserver agreement was collected during 37.5% of the sessions. The average IOA for fidelity of implementation was 98% and ranged from 88% to 100%. The average IOA for student behavior was 96.7% with a range from 93.3% to 100%.

Dyad C. Interobserver agreement was collected during 30.8% of the sessions. The average IOA for fidelity of implementation was 90.8% and ranged from 63% to 100%. Average IOA for student behavior was 96.8% and ranged from 93.3% and 100%.

Chapter IV - Results

Results

Fidelity of Implementation

Fidelity of implementation was the primary area of concern of the study. The primary measure for fidelity of implementation was the OFIC, which is a fidelity of implementation checklist developed by the consultant in order to measure the paraprofessionals' fidelity of implementation during direct observation.

Baseline. The percentage of intervention steps implemented correctly by each paraprofessional across all phases of the study is presented in Appendices S, T, and U and the mean percentages are presented in Appendix V. All paraprofessionals implemented close to zero percent of the intervention steps throughout this condition. For example, Paraprofessional A's mean level of fidelity of implementation was 1.1% with 3 out 4 sessions at zero percent. For Paraprofessional B, implementation of intervention steps averaged 1.4%. Paraprofessional B completed 3.5% of the steps during the first session, 6.3% of the steps during the second session, and 0% of the steps during the remaining five sessions. Paraprofessional C correctly implemented 3.5% of the intervention steps during the initial session and 0% during the remaining five sessions for an average 0.6%.

Behavioral intervention. For this phase, all paraprofessionals demonstrated an increase in the level of their fidelity of implementation steps. Paraprofessional A's fidelity of implementation indicated a decreasing trend. Paraprofessional A's average of 77.8% throughout this condition indicated an increase in level from Baseline (M = 1.1%).

More specifically, the Improvement Rate Difference (IRD) between Behavioral Intervention and Baseline is 100%.

IRD is an effect size used for summarizing single-case research data, and reports the difference in successful performance between baseline and intervention phases (Parker, Vannest, & Brown, 2009). The definition of IRD is the improvement rate of the intervention phase(s) minus the improvement rate of the baseline phase. The maximum IRD of 100% indicates that all intervention phase scores exceed all baseline scores, while an IRD of 50% indicates only chance level improvement from baseline to intervention.

Throughout these sessions, Paraprofessional B's fidelity of implementation demonstrated an increasing trend with an average of 61.9%. Data collected during Behavioral Intervention indicated an increase in level when compared to Baseline (IRD = 100%).

Lastly, Paraprofessional C's fidelity of implementation was low at 4% in the first session, stayed low at 3% in the second session, and then increased to 46%. Although the average for percentage of steps remained low, the data indicated an increasing trend with an IRD of 66.7% when compared to Baseline, indicating an increase in level.

Behavioral intervention plus performance feedback. When the Behavioral Intervention plus Performance Feedback condition began, the level of fidelity of implementation increased for all paraprofessionals. Paraprofessional A's percentage of implementation steps completed immediately increased to 95.8% and remained high and stable throughout the remaining sessions. Paraprofessional A averaged completing 98.9% of the interventions steps with an IRD of 100% and an increase in level when comparing

performance within this condition to that of Behavioral Intervention, and an IRD of 100% with an increase in level when compared to Baseline.

Paraprofessional B's fidelity of implementation increased to 89% when the Behavioral Intervention plus Performance Feedback phase began, dropped in steps completed during the third session, and then returned to a high level of completion. During the session in which fidelity of implementation was 50%, the classroom environment had changed from academic to less structured and the paraprofessional reported concerns about the intervention in that setting. The intervention was then modified prior to the next session in order to better reflect the less structured environment and make the intervention more acceptable to the paraprofessional. Paraprofessional B averaged completing 83% of the intervention steps with an IRD of 66.7% and an increase in level when comparing to Behavioral Intervention. When compared to Baseline, there was also an increase in level (IRD = 100%).

Paraprofessional C's fidelity of implementation increased to 87.5% at the beginning of the Behavioral Intervention plus Performance Feedback phase and indicated an increasing trend. Paraprofessional C averaged completing 95.4% of the intervention steps with an IRD of 100% and an increase in level when comparing performance within this condition to that of Behavioral Intervention. There was also an increase in level from Baseline with an IRD of 100%.

Paraprofessional Self-Report of Fidelity of Implementation

A secondary measure of fidelity of implementation was the PFIC, which was developed by the consultant in order to measure self-report of the paraprofessionals' fidelity of implementation.

Behavioral intervention. Appendices W, X, and Y display the percentage of the steps of the intervention that were self-reported as completed by the paraprofessionals with mean percentages presented in Appendix Z. Paraprofessional A self-reported an average of 100% fidelity of implementation during the Behavioral Intervention phase. The data indicate a high level and stable trend. Paraprofessional B self-reported a fidelity of implementation that averaged 83.8% and ranged from 75 to 94%. Performance during this condition showed a decreasing trend. Paraprofessional C's self-reported fidelity of implementation averaged 97.5% during this phase with a range from 88 to 100%. The data were relatively stable with a slightly decreasing trend.

Behavioral intervention plus performance feedback. During this phase, Paraprofessional A's self-reported fidelity of implementation averaged 97.6% with a range from 85.7 to 100%. This performance is at a slightly lower level than the performance throughout the Behavioral Intervention condition. Paraprofessional A's pattern of behavior demonstrated a relatively stable and slightly increasing trend with an IRD of 16.7% when comparing performance within this condition to the Behavioral Intervention phase. The average self-reported fidelity of implementation during the Behavioral Intervention phase was 100%, which creates a ceiling effect making it more

difficult to demonstrate an increase in performance during the Behavioral Intervention plus Performance Feedback condition.

Paraprofessional B's self-report data of fidelity of implementation during this phase was incomplete and included only three data points. The paraprofessional did not complete the data sheets as directed and the data were not collected as was expected during the last two weeks of the study. The consultant did not observe the lack of data completion prior to the end of the study. Performance increased from 67 to 88% with an average of 79.7% during this phase. The partial data indicated an increasing trend but a lower level and a PND of 0% when compared to the Behavioral Intervention phase.

Paraprofessional C's self-reported fidelity of implementation data were relatively stable and ranged from approximately 94 to 100% with an average of 97.6%. This percentage is similar to performance throughout the previous phase with a PND of 33.3% and a level comparable to the Behavioral Intervention phase. Similarly to Paraprofessional A, the self-reported fidelity of implementation was high during the Behavioral Intervention phase, which makes an improvement difficult between the Behavioral Intervention phase and the Behavioral Intervention plus Performance Feedback phase.

Treatment Effectiveness

Although fidelity of implementation was the primary focus of the study, student behavior was also measured. The mean percentages that students exhibited target behaviors across all phases of the study are presented in Appendix AA. Observers utilized the DOPMS for observation using momentary time sampling with 10-second

intervals during 20-minute direct observation sessions in order to obtain the percentage of intervals where student behavior occurred.

Baseline. For Student A, disruptive behavior occurred during an average of 31.4% of the observed intervals with a range of 17.4 and 48.9% of the observed intervals during Baseline. Off-task behavior for Student B occurred during an average of 11.3% of the observed intervals with a range of 3 to 22.5% of the intervals. Student C's off-task behavior was observed to occur an average of 16.5% of the intervals with a range of 0.5 to 32.5% of the observed intervals.

Behavioral intervention. During this phase, Student A exhibited the disruptive behavior during an average of 35.8% of the observed intervals with a range of 5.8 to 65% of the intervals. Student B's off-task behavior occurred during an average of 8.3% of the observed intervals with a range of 5.8 to 12.5% of the observed intervals. Student C's off-task behavior occurred during an average of 12.5% of the observed intervals with a range of 3 to 28.6% of the intervals.

Behavioral intervention plus performance feedback. Student A's disruptive behavior occurred during an average of 7.9% of the observed intervals with a range of 0.8 to 13.3%. Student B's off-task behavior occurred during an average of 4.5% of the intervals observed with a range of 1.7 to 14.2%. Off-task behavior for Student C occurred during an average of 6.5% of the intervals with a range of 0 to 17%.

Paraprofessional Report of Treatment Effectiveness

The paraprofessionals utilized DBRs in order to record the percentage of total time that the student displayed the target behavior during the intervention session.

Behavioral intervention. The mean percentages of student behavior reported through DBRs by the paraprofessionals are presented in Appendix BB. DBR data related to Student A's disruptive behavior ranged from 14 to 74% with an average reported target behavior of 45.5%. Student B's reported off-task behavior ranged from 40 to 63% with an average target behavior of 50.8%. Off-ask behavior reported for Student C ranged from 27 to 47% with an average target behavior of 36.2% during this phase.

Behavioral intervention plus performance feedback. The reported disruptive behavior for Student A ranged from 2 to 74% with an average target behavior of 35.5%. Student B's off-task behavior was only reported by the paraprofessional during the first week of the Performance Feedback phase, and data are unavailable for the final two weeks because data was not collected as was expected. The range of the target behavior during the first week was from 7 to 60% with an average of 33.3%. Student C's off-task behavior ranged from 0 to 23% during this phase with an average target behavior of 12.5%.

Chapter V – Discussion

Discussion

Paraprofessionals are an essential part of the school system as they often work primarily or solely with students receiving special education services (Minnesota Department of Education, 2013). Many paraprofessionals report that they implement behavior management programs (Carter et al., 2009), but little research exists that demonstrates that they are able to provide behavioral interventions with an acceptable level of fidelity of implementation. Because paraprofessionals often provide behavioral interventions to the students with the highest level of need, it is important to examine whether or not paraprofessionals can provide those interventions with an adequate level of fidelity of implementation. This high level of fidelity of implementation is important to ensure that the interventions have a best possible chance of making a difference in the education of these students.

Several published studies have shown that higher fidelity of implementation is related to better student outcomes (Kovaleski et al., 1999; O'Donnell, 2008; Telzrow et al., 2000; Wood et al., 2007). It has also been demonstrated that performance feedback is an effective way to increase the fidelity of implementation of interventions that are provided within the school setting. In addition, research has demonstrated that graphical performance feedback is effective in increasing fidelity of implementation within the schools (Casey & McWilliam, 2008; Mautone et al., 2006; Noell et al., 1997; Reinke et al., 2008), and that it has been effective when provided either on a weekly or daily basis (Mortenson & Witt, 1998).

The purpose of the present study was to examine whether paraprofessionals were able to provide intervention to students with acceptable fidelity of implementation when graphical performance feedback was provided through email following observations twice per week. This study also utilized a short 30 to 45 minute training session rather than multiple training sessions and graphical performance feedback through email rather than on paper or in person. In addition, performance feedback was utilized approximately two times per week rather than daily. These differences were utilized to examine whether they would be more realistic for a consultant within a school setting and whether they would be as useful in increasing fidelity of implementation.

The first hypothesis was that fidelity of implementation would be highest for the paraprofessionals when performance feedback was utilized when compared to the Behavioral Intervention phase. When examining the averages during each phase for each dyad, fidelity of implementation was higher during the Behavioral Intervention plus Performance Feedback condition than the Behavioral Intervention phase for all dyads. The average fidelity of implementation for all dyads was highest during the Behavioral Intervention plus Performance Feedback phase, followed by the Behavioral Intervention phase with the lowest average occurring during Baseline. These data support the hypothesis that fidelity of implementation would be highest when performance feedback was utilized.

In addition, it was hypothesized that paraprofessionals would achieve the highest level of fidelity of implementation when graphical performance feedback through email was utilized. Although there was some variability in the ranges of fidelity of

implementation during the Behavioral Intervention plus Performance Feedback phase, average fidelity of implementation was the highest for all dyads when graphical performance feedback through email was utilized (M = 98.9%; M = 83%; M = 95.4%). These data suggest that graphical performance feedback through email may be as effective in increasing and maintaining high fidelity of implementation as the paper copies and in person feedback utilized in previous studies. The findings also indicate that utilizing performance feedback approximately two times per week as opposed to providing daily performance feedback may be as effective at increasing and maintaining fidelity of implementation within the school setting in which daily performance feedback may not be feasible.

The findings indicate that observation data may be more accurate and reliable than the data provided by the paraprofessionals. The paraprofessionals rated their own fidelity of implementation at a higher percentage than what was rated by the observer during the same condition. For example, during the Behavioral Intervention condition, all three of the paraprofessionals rated their own fidelity of implementation (M = 100%; M = 83.8%; M = 97.5%) at a higher average percentage than did observers (M = 77.8%; M = 61.9%; M = 17.4%). The paraprofessionals also rated student behavior at a higher percentage than what was rated by the observer during the same condition. For example, during the Behavioral Intervention phase, all three paraprofessionals rated the student behavior (M = 45.5%; M = 50.8%; M = 36.2%) at a higher percentage than did the observers (M = 35.8%; M = 8.3%; M = 12.5%). This was also the case during the Behavioral Intervention plus Performance Feedback condition. Since there was 100%

IOA during the Behavioral Intervention phase for fidelity of implementation and 97.4% IOA for student behavior, it is likely that observers were more reliable in their measurement, while paraprofessionals seemed to have overestimated their fidelity of implementation and the student behavior. These findings may suggest that observation sessions completed by the consultant may be necessary in order to ensure the fidelity of implementation of the paraprofessionals in the classroom.

Findings from this study suggest that paraprofessionals were able to provide behavioral interventions to students in the classroom with high fidelity of implementation when they were provided with a short 30-45 minute training session and performance feedback was utilized. The short training session included instruction, modeling, coaching, praise, and corrective feedback and was feasible for use within the school setting due to the limited amount of time necessary to provide the training. A short training session and performance feedback after a 20-minute observation approximately two times per week are likely acceptable even to a consultant with limited time available in the school setting.

Paraprofessionals A and C were able to provide a behavioral intervention to the students with whom they work with high fidelity of implementation (Above 90%; Gresham, 2009), while Paraprofessional B's average fidelity of implementation fell slightly short of 90% (M = 83%). These data provide evidence that paraprofessionals can provide intervention to students with acceptable fidelity of implementation when visual performance feedback is provided through email approximately two times per week. The data suggest that paraprofessionals can be utilized to provide behavioral interventions to

students within the classroom with acceptable fidelity of implementation when they are given a short training, observed approximately two times per week by the consultant, and provided with visual performance feedback through email.

Limitations, Future Research, and Implications

Although the current findings extend the research in the areas of fidelity of implementation and the use of performance feedback in paraprofessional implementation of behavioral interventions in general education settings, there were several limitations that need to be addressed. First, both the paraprofessionals and the students were chosen by administration based on availability and convenience. Paraprofessionals were chosen because they worked with elementary students who were exhibiting problem behaviors in the classroom, and did not agree to be in the study based on their own personal interest. Because of the way that they were recruited, it is possible that the paraprofessionals who participated in the study did not have as much buy in into the study as paraprofessionals who are voluntarily seeking assistance from a consultant. The way in which paraprofessionals were identified may also have affected their willingness to implement the intervention as trained and consistently complete paperwork.

Self-report fidelity of implementation and DBR data for paraprofessional B was missing for the last two weeks of the study because it was not completed and collected as was expected. The completion of this paperwork was not included in the calculation of fidelity of implementation by the observers. In future research, it may be beneficial to include the completion of the self-report fidelity of implementation and measurement of student behavior when calculating the fidelity of implementation for the paraprofessional.

If the paperwork had been included in the percentage of fidelity of implementation, it is a possibility that the paraprofessional would have been more likely to complete the necessary documentation and the observers would have been monitoring its completion.

Another limitation to the study included that there was a change in the classroom environment for two of the students. These changes occurred for Student B during the Behavioral Intervention plus Performance Feedback phase and for Student C immediately prior to the beginning of this phase. Because it was close to the end of the school year, the classroom environment for these students became less structured and academically focused as compared to the previously structured instructional environment. These changes were unavoidable due to differences in the teachers' plans for the school day. Although unexpected changes are unavoidable in natural settings such as schools, the changes in the setting and environment for one dyad affected the fidelity of implementation during one session and necessitated the modification of the intervention.

An additional limitation was that because the study ran to the very end of the school year, there was no time to fade the performance feedback or do a follow-up measurement of fidelity of implementation. The conditions of the study ran to the very last day of classes for the students, so it was not possible to fade the Behavioral Intervention plus Performance Feedback condition in order to examine whether fidelity of implementation would decrease if performance feedback was faded from twice a week, to once a week, to every other week, etc. Because students will be in different settings and will likely have different paraprofessionals during the school year following

the study, it was not possible to follow up to examine whether or not fidelity of implementation remained high after the consultation ended.

In relation to the multiple baseline design, the number of overlapping data points between participants in the study was two instead of the three that would be required to indicate a trend. Because the direct observation data was only collected two times per week instead of the usual daily data collection, there was a full week of overlapping data points between participants, which should have been an adequate amount of time for a change in another baseline to be demonstrated. The fidelity of implementation data also did not always indicate stability or trends in the proper direction before the condition was changed. These decisions were made due to the fact that it was more acceptable in the school setting to implement the intervention as soon as possible for all students rather than implementing longer baselines, which would have increased the time in which student problem behavior was taking place within the general education classroom. The sooner that students B and C could receive the intervention, the larger the possible benefit to their education and there was less time that the classroom environment was disrupted by their behaviors.

Future research should provide additional evidence that paraprofessionals can provide interventions to students within the general education classroom with acceptable fidelity of implementation when provided with training and performance feedback and observed regularly by the consultant. Further studies could examine whether or not paraprofessionals are able to provide academic interventions to students with high fidelity of implementation within the general education setting. Research could also assess

whether conducting direct observations and providing performance feedback less often would have the same affect on fidelity of implementation in order to make their use even more acceptable in a school setting.

DiGennaro, Martens, and Kleinmann (2007) faded the performance feedback given special education teachers from daily to every other day to once per week, and then to once every two weeks. The schedule was thinned each time fidelity of implementation was maintained at 100% for three consecutive weeks, and returned to the previous rate if 100% fidelity of implementation was not maintained. Fidelity of implementation remained high during the fading phase. Further research could look at whether or not the fidelity of implementation of paraprofessionals within the classroom could be maintained in the same way when performance feedback is faded and possibly eliminated.

It would also be valuable to collect follow-up data in order to examine whether paraprofessionals are able to maintain acceptable fidelity of implementation when consultation has been terminated and they no longer receive the support and feedback of the consultant. It may also be beneficial to utilize paraprofessionals in future research who have chosen to participate because of their desire for assistance with the student with whom they work in order to encourage and examine the affect of buy-in on the acceptability of the intervention and the adequate and consistent completion of data sheets.

The findings of the current study suggest that no matter the past experience or training of the paraprofessional, he or she can provide behavioral interventions to students with high fidelity in the classroom when provided with a short training and

visual performance feedback through email approximately two times per week. Because the training only takes approximately 30-45 minutes and the performance feedback is provided through email, the training and performance feedback require a minimum amount of the consultant's time, and should be feasible within the school setting.

Findings of the present study suggest that with consultation services, paraprofessionals can be utilized by the school system in order to provide behavioral interventions to the students who need them the most due to their behaviors in the classroom. The use of paraprofessionals to provide these services, in addition to interventions provided by special education teachers, can allow for more students who require individualized intervention to receive the necessary services within the school setting than can be serviced by special education teachers alone. Although more research is needed in order to provide further support for the use of paraprofessionals in providing behavioral and other interventions to students within the schools, the current study suggests that the paraprofessionals who are already available within the schools can be utilized in order to provide behavioral interventions to the students who need them within the classroom and could make significant differences in the education of these children.

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Appendix A

Paraprofessional Consent Form

Dear Paraprofessional:

You are invited to participate in a research study being conducted by Dana Shea, a doctoral candidate in school psychology at Minnesota State University, Mankato. The purpose of the study is to examine the utility of performance feedback in increasing the level that an intervention is delivered in the way that it was meant to be delivered to students in the classroom by paraprofessionals. You will be asked to provide basic demographic information about your educational background and training, but will not be asked to provide identifying information. You will then be provided with training related to an individualized intervention for a student with whom you work and will then be asked to provide a behavioral intervention to the student within the special education or general education classroom. The individualized intervention will consist of: providing a pre-correction to the student related to the alternatives to the problem behavior(s) and the ability to ask for breaks, ignoring problem behavior(s), giving the student a cue when problem behavior(s) occur in order to let the student know that he or she is exhibiting problem behaviors and can ask for a break, praising the student when alternative behaviors are used and when the student asks for a break, and providing a break based on the reason for the student's behavior for a specified length of time dependent on the severity of the problem behavior(s) in the classroom. After the study is completed, you will be asked to answer a few questions related to the acceptability of the intervention.

By initialing below and signing on the next page, you indicate that you understand that your identifying information will not be associated with the data collected. You understand that the risks of participating in this study are minimal. You may feel as though you could be evaluated based on your results, but no data with identifying information will be shared with your supervisors or administrators.

You understand that participating in this study may help you to feel more effective and less stressed about working with students with behavioral issues. If an effective intervention is provided, it will allow the student to be more effective in the

learning environment. Decreasing the students' behaviors in the classroom may benefit the other students in the class by allowing increased time for academics and a more positive learning environment, while also increasing the classroom teachers' experience in the classroom and possible job satisfaction. Providing behavioral intervention to decrease one student's disruptive behavior in the classroom may lead to improved experiences for all the classroom teachers and students in these classrooms.

If you have any questions or concerns about the research, you can contact Dana Shea at 507-951-9292 or dana.shea@mnsu.edu or Dr. Carlos Panahon at 507-389-2815 or carlos.panahon@mnsu.edu. You may contact the Minnesota State University, Mankato Institutional Review Board Administrator, Barry Ries, at 507-389-2321 or barry.ries@mnsu.edu with any questions about research with human participants at Minnesota State University, Mankato.

Your signature below indicates that you understand that participation in this project is voluntary and that you have the right to stop at any time. You further attest that you are at least 18 years of age.

_____

Name of Paraprofessional

_____ _____

Signature of Paraprofessional Date

Appendix B

Parental Consent Form

Dear Parent or Guardian:

I am inviting your child to participate in a research project being conducted with your child's paraprofessional. My name is Dana Shea and I am a doctoral candidate in the School Psychology program at Minnesota State University, Mankato. Your child has been chosen by school staff members because they believe he or she may benefit from this project. Participation in this project is voluntary and you may choose to have your child participate or not. Below is a description of what the project is about.

I am interested in learning whether or not paraprofessionals can provide behavioral interventions to students in the classroom as the interventions were meant to be delivered when the paraprofessionals are given feedback related to their performance. Feedback will be given to the paraprofessionals related to the percentage of the intervention steps that they conduct adequately. Paraprofessionals will be provided training related to an individualized intervention for a student with whom they work and will then be asked to provide an intervention to a student who is exhibiting disruptive behavior in the special education or general education classroom.

The individualized intervention will consist of: providing a pre-correction to the student related to the alternatives to the problem behavior(s) and the ability to ask for breaks, ignoring problem behavior(s), giving the student a cue when problem behavior(s) occur in order to let the student know that he or she is exhibiting problem behaviors and can ask for a break, praising the student when alternative behaviors are used and when the student asks for a break, and providing a break based on the reason for the student's behavior for a specified length of time dependent on the severity of the problem behavior(s) in the classroom. The student will behave as they normally would while the paraprofessional provides the intervention and the researcher will observe and record the student's behavior during the intervention, but will not interact directly with the student.

Potential Risks to Your Child

The potential risks of participating in this project are minimal, but it is possible that your child's behavior may not decrease when the intervention is provided. If the intervention is not effective, the researcher will work with the paraprofessional to provide an effective intervention after the study is completed.

Benefits to Your Child

If the intervention is effective, it will allow your child to be more effective in the learning environment. Your child may also demonstrate more acceptable classroom behaviors in the future.

If at any point you or your child no longer wishes to participate, you have the right to withdraw from the project at any time without hurting your relationship with Minnesota State University, Mankato. If after reading the description you have any questions about this study or what is expected of your child, please feel free to contact me at 507-951-9292 or dana.shea@mnsu.edu or Dr. Carlos Panahon at 507-389-2815 or carlos.panahon@mnsu.edu. If at any time you have questions about your rights as a participant, please contact the Institutional Review Board Administrator, Dr. Barry Ries, at 507-389-2321 or barry.ries@mnsu.edu.

If you want your child to participate in my study, please complete the section below and return the signed and initialed copy in the envelope provided. Enclosed is a copy of this letter for you to keep.

If you have any questions or would like anything clarified, please contact me before returning this letter. Your initials at the bottom of the previous page and signature on this page indicate that you have read and understand the information above, that you willingly agree to participate, that you may withdraw at any time and discontinue participation without penalty, and that you will receive a copy of this form. Thank you very much for your consideration.

I have read and understand the above information. I hereby give permission for my child, _____, to participate in the research project evaluating the utility of performance feedback in increasing fidelity of intervention implementation with paraprofessionals conducted by Dana Shea.

_____

Name of Parent/Guardian

_____ _____

Signature of Parent/Guardian Date

Appendix C

Student Assent Form

In order for children to participate in this project, each student must provide oral assent to participate prior to the start of the first observation. Therefore, each student must orally indicate that he/she is willing to participate in the project before you can begin working with the student. Please read the following script to the child and document whether the student assent has been obtained.

Directions:

1. Say the following to the child,

   "My name is _____ and I am from Minnesota State University, Mankato. I would like to watch you work with your paraprofessional, _____, in the classroom. I will not talk with your teachers or classmates about what I see. I will write things down about your behavior, but I will not write down your name. You don't need to do anything special—just act like you normally would.

   Your parent or guardian and teacher have said that it is okay for me to watch _____ and you. If you do not want me to watch _____ and you, just say so.

   Tell your teacher, parents, or your paraprofessional if you are worried or unhappy about anything that happens while I am watching you work with your para.

   Would it be okay if I watch you and your para work together?"

2. Please circle the child's response to the above question:

   Yes **No** **I don't know** **No response**

3. Please provide the following information:

   Child's Name: _____

   Date: _____

Appendix D

Paraprofessional Demographics Questionnaire

1. What is your educational background?
   _____High School Diploma
   _____Some college credits
   _____ Associate's Degree
   _____Undergraduate Degree
   _____Some graduate credits
   _____Master's Degree
   _____Doctoral Degree

2. If you have a degree, what was your major?

3. How long have you been a paraprofessional?

4. For which grades have been a paraprofessional?

5. How long have you been in your current position?

6. What experience have you had with behavioral problems?

7. What training have you had related to behavior management?

8. What trainings were provided by your current employer?

Appendix E

Functional Assessment Checklist for Teachers and Staff

Efficient Functional Behavior Assessment: The Functional Assessment Checklist for Teachers and Staff: Part A

Step 1

Student/ Grade: Date:
Interviewer: _____ Respondent(s): _____

Step 2

Student Profile: Please identify at least three strengths or contributions the student brings to school.
_____
_____

Step 3

Problem Behavior(s): Identify problem behaviors

___ Tardy	___ Fight/physical Aggression	___ Disruptive	___ Theft
___ Unresponsive	___ Inappropriate Language	___ Insubordination	___ Vandalism
___ Withdrawn	___ Verbal Harassment	___ Work not done	___ Other _____
	___ Verbally Inappropriate	___ Self-injury	

Describe problem behavior: _____

Step 4

Identifying Routines: Where, When and With Whom Problem Behaviors are Most Likely.

Schedule (Times)	Activity	Likelihood of Problem Behavior	Specific Problem Behavior
		Low 1 2 3 4 5 6 High	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	
		1 2 3 4 5 6	

Step 5

List the Routines in order of Priority for Behavior Support: Select routines with ratings of 5 or 6. Only combine routines when there is significant (a) similarity of activities (conditions) and (b) similarity of problem behavior(s). Complete the FACTS-Part B for each of the prioritized routine(s) identified.

	Routines/Activities/Context	Problem Behavior(s)
Routine # 1		
Routine # 2		
Routine # 3		

Adapted by C. Anderson & C. Borgmeier (2007) from March, Horner, Lewis-Palmer, Brown, Crone & Todd (1999)

Efficient Functional Behavior Assessment: The Functional Assessment Checklist for Teachers and Staff: Part B

Step 6 **Routine/Activities/Context:** Which routine(only one) from the FACTS-Part A is assessed?

Routine/Activities/Context	Problem Behavior(s)

Step 7 **Provide more detail about the problem behavior(s):**

What does the problem behavior(s) look like?

How often does the problem behavior(s) occur?

How long does the problem behavior(s) last when it does occur?

What is the intensity/level of danger of the problem behavior(s)?

Step 8 **ANTECEDENTS: TRIGGERS AND SETTING EVENTS**

What are the events that predict when the problem behavior(s) will occur? (Predictors).

Identify the trigger generally

1. **In this routine, what happens most often just before problem behavior? _____**
2. **If you put this trigger in place 10 times, how often would it result in problem behavior?**
3. **Does problem behavior ever happen when (opposite of trigger or trigger absent)?**

Triggers		
____Tasks	____Reprimands	____Transitions
____Unstructured time	____Structured/non-academic activities	____Isolated, no-one around

Identify specific features of the trigger		
If tasks (e.g., group work, independent work, small-group instruction, lecture)…	Describe the task in detail (e.g., duration, ease of task for student), what features of it likely are aversive to the student and why is this hypothesized?	
If unstructured time…	Describe the setting, activities, and who is around	
If reprimand…	Describe who delivers the reprimand, what is said, and what the purpose of the correction is	
If structured, nonacademic activities	Describe the context, who is around, what activities are going on, what behaviors are expected?	
If transitions	Describe the activity that is being terminated and the one that is being transitioned to. Identify whether any of the activities are highly preferred or non-preferred, which are structured versus non-structured.	
If isolated	Where did the behavior occur? What features of the environment might be relevant?	

Adapted by C. Anderson & C. Borgmeier (2007) from March, Horner, Lewis-Palmer, Brown, Crone & Todd (1999)

Step 9

Are setting events relevant?

1. **Is there something that, when present makes it more likely that the trigger identified above sets off the behavior?**
2. **If yes, is this event present sometimes and absent others? Does the behavior occur only when the event is present?**

Setting Events		
____Correction/failure in previous class	____Conflict at home	____Hunger
____Peer conflict	____Correction from adult earlier in day	____Lack of sleep
____Change in routine	___Homework/assignment not completed	___Medication (missed or taken)

Step 10

CONSEQUENCES

What consequences appear most likely to maintain the problem behavior(s)?

Identify the consequence generally

In the routine identified, when the trigger occurs and problem behavior happens, what occurs next?

1. **What do you do? What do other students do? What activities happen or stop happening?**
2. **Narrow it down: Take each consequence identified above:**
   a. **Would the behavior still happen if that consequence couldn't occur (e.g., if peer attention, no other students were around?; if your attention, would the behavior still occur if you were not around? If escape, would the behavior still occur if the task was easier?)**
   b. **Of the last 10 times you saw the behavior, how often did this consequence occur?**

Things that are Obtained		**Things Avoided or Escaped From**	
___ adult attention	Other: _____	___ hard tasks	Other: _____
___ peer attention	_____	___ reprimands	_____
___ activity		___ peer negatives	_____
___ money/things	_____	___ physical effort	_____
		___ adult attention	_____

Identify specific features of the Consequence

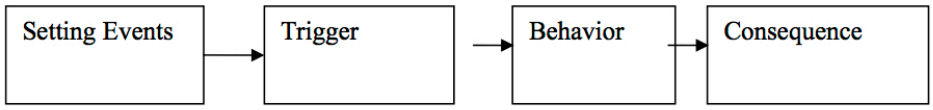
Identify specific features of the consequence		
If adult or peer attention is obtained or avoided.	Define who delivers attention, what they say, and how long the attention typically lasts. What does the student do following this attention—is their a back-and-forth that occurs? Does behavioral escalation occur?	
If an activity or request follows or is removed	Describe the specific activity including who else is present, what the activity consists of, and how long it lasts.	
If tangible items are obtained or removed	Describe the specific item(s) obtained including who else is present and how long the student has access to the item.	
If sensory stimulation possibly occurs or is removed	Describe the context, who is around, what activities are going on, what behaviors are expected?	

Adapted by C. Anderson & C. Borgmeier (2007) from March, Horner, Lewis-Palmer, Brown, Crone & Todd (1999)

Step 11

SUMMARY OF BEHAVIOR

Identify the summary that will be used to build a plan of behavior support.



How confident are you that the <u>Summary of Behavior</u> is accurate?

Not very confident					Very Confident
1	2	3	4	5	6

March, Horner, Lewis-Palmer, Brown , Crone, Todd, & Carr (2000) 4/24/00

Adapted by C. Anderson & C. Borgmeier (2007) from March, Horner, Lewis-Palmer, Brown, Crone & Todd (1999)

Appendix F

FBA Observation and Summary Form

FBA OBSERVATION AND SUMMARY FORM (FBA-OSF)

STUDENT: _____ OBSERVER: _____

BEHAVIOR INCIDENT #	BEHAVIORS (WRITE IN)				ANTECEDENTS										CONSEQUENCES								CLASS/ LOCATION (WRITE IN)			DATE / TIME		
					TASK LEVEL			CLASS ACTIVITY			INTERACTION		ALONE / NO ATTENTION		OBTAIN				AVOID/ ESCAPE									
					DIFFICULT	EASY	LONG	SEATWORK	TEACHER-LED INSTRUCTION	UNSTRUCTURED TIME	WITH ADULT	WITH PEER(S)			ADULT ATTENTION	PEER ATTENTION	TASK/ACTIVITY	TANGIBLE	ADULT ATTENTION	PEER ATTENTION	TASK/ACTIVITY	TANGIBLE				DATE:	DATE:	DATE:
1																												
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												
13																												
14																												
15																												
TOTAL																												

Directions: For each behavior incident, place an X in the appropriate boxes across the corresponding row to indicate which behaviors, antecedents, and consequences were observed. After all observations are completed, create a summary statements that describes the antecedents and consequences that are most closely related to each behavior and build an intervention plan using this summary. A template for writing summary statements can be found on page 2 of this form.

SUMMARY STATEMENTS FROM FBA OBSERVATION

RESPONSE CLASS #1

ANTECEDENT	BEHAVIOR	CONSEQUENCE

RESPONSE CLASS #2

ANTECEDENT	BEHAVIOR	CONSEQUENCE

RESPONSE CLASS #3

ANTECEDENT	BEHAVIOR	CONSEQUENCE

Directions: For each behavior incident, place an X in the appropriate boxes across the corresponding row to indicate which behaviors, antecedents, and consequences were observed. After all observations are completed, create a summary statements that describes the antecedents and consequences that are most closely related to each behavior and build an intervention plan using this summary. A template for writing summary statements can be found on page 2 of this form.

Appendix G

Observer Fidelity of Implementation Checklist

Observer:_____

Date:_____ Dyad Code:_____

1. **Provided scripted pre-correction (includes reminder of alternative behaviors and breaks)**

   0 = No 4 = Yes

2. **Ignored target behaviors (no interaction)**

   0 = 0% 1 = 25%2 = 50%3 = 75%4 = 100%

   Y/N _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

3. **Gave cue when target behaviors occurred**

   0 = 0% 1 = 25%2 = 50%3 = 75%4 = 100%

   Y/N _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

4. **Praised the use of alternative behaviors**

   0 = 0% 1 = 25%2 = 50%3 = 75%4 = 100%

   Y/N _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

5. **Praised when student asked for a break**

   0 = 0% 1 = 25%2 = 50%3 = 75%4 = 100%

   Y/N _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

6. **Provided break based on the function of the behavior**

   0 = 0% 1 = 25%2 = 50%3 = 75%4 = 100%

   Y/N _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

7. **Provided breaks for a specific time period**

   0 = 0% 1 = 25%2 = 50%3 = 75%4 = 100%

   Y/N _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Total = _____ out of 28

Appendix H

Paraprofessional Fidelity of Implementation Checklist

Please circle the response that best describes your completion of the step during session. Please choose the percentage that is closest to the percentage of time that you demonstrated the step during the intervention session.

1. **Provided scripted pre-correction (includes reminder of alternative behaviors and breaks)**

   Yes No

2. **Ignored target behaviors (no interaction)**

   0% 25% 50% 75% 100%

3. **Gave cue when target behaviors occurred**

   0% 25% 50% 75% 100%

4. **Praised the use of alternative behaviors**

   0% 25% 50% 75% 100%

5. **Praised when student asked for a break**

   0% 25% 50% 75% 100%

6. **Provided break based on the function of the behavior**

   0% 25% 50% 75% 100%

7. **Provided breaks for a specific time period**

   0% 25% 50% 75% 100%

8. **Completed Direct Behavior Rating form after session was over**

   Yes No

Date:_____ Dyad Code:_____

Total = _____ out of 32

Appendix I

Direct Observation Progress Monitoring System

Direct Observation Progress Monitoring System

Person being observed: _____

Observer: _____

Date: _____ Start Time: _____ End Time: _____ Location: _____

Condition (circle one): Baseline - Intervention - Other (describe):

PRECISE DEFINITION OF TARGET BEHAVIOR:

_____

_____

Momentary Time Sampling

Directions: Using a stopwatch to keep time, observe for one-second only at the specified time intervals (e.g., look for one second right away, record the behavior, then look again for one second at the 10-second mark, record the behavior, etc.). Record occurrence of behavior with an X and non-occurrence with an O.

Minute	:00 - :01	:10 - :11	:20 - :21	:30 - :31	:40 - :41	:50 - :51
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						

INFORMAL NOTES: _____

SUMMARY

# of Intervals with target behavior: ____ / 120 = _____ % of intervals with target behavior

Appendix J

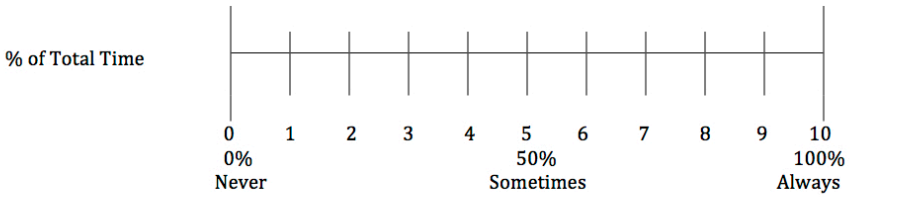
Direct Behavior Rating (DBR) Form – Fill-in Behaviors

Direct Behavior Rating (DBR) Form – Fill-in Behaviors

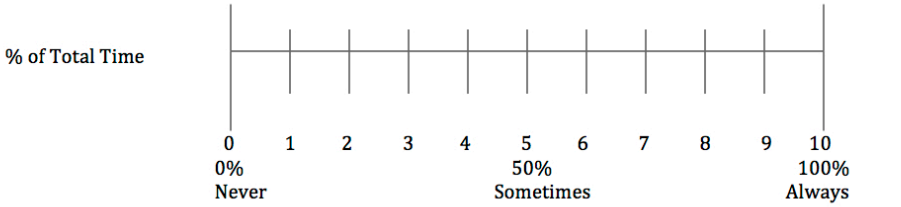
Date: M T W Th F	Student: Rater:	Activity Description:
Observation Time: Start:_____ End: _____ ☐ Check if no observation today	Behavior Descriptions:	

Directions: Place a mark along the line that best reflects the percentage of total time the student exhibited each target behavior. Note that the percentages do not need to total 100% across behaviors because some behaviors may co-vary. If desired, an additional behavior may be defined and rated.

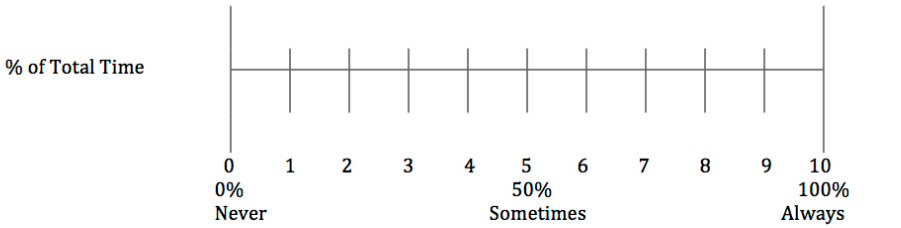
Behavior: _____



Behavior: _____



Behavior: _____



Appendix K

Intervention Plan – Dyad A

1. Provide a pre-correction to the student related to the alternatives to the problem behavior(s): “Remember to raise your hand when you need something, stay in your own space, and follow directions.”
2. Ignore problem behavior(s),
3. Give the student a cue when problem behavior(s) occur in order to let the student know that he or she is exhibiting problem behaviors: Every 3 minutes give cue if he is not doing when he needs to be doing.
4. Praise the student when alternative behaviors are used (Raise hand rather than talking out, stay in his own space, follow directions the first time asked)
5. Provide a “break” based on the reason for the student’s behavior for a specified length of time or at specified intervals dependent on the severity of the problem behavior(s) in the classroom: Every 3 minutes give praise statement if he is doing what he needs to be doing. For Example: “You are doing a great job staying in your own space,” “Thank you for following directions so well,” etc.

Appendix L

Intervention Plan – Dyad B

1. Provide a pre-correction to the student related to the alternatives to the problem behavior(s): “Remember to stay at your desk and do your work quietly.”
2. Ignore problem behavior
3. Give the student a cue when problem behavior occurs in order to let the student know that he is exhibiting problem behaviors: Every 10 minutes give cue if he is not doing what he needs to be doing.
4. Praise the student when alternative behaviors are used (stay at his desk, quietly do his work, do expected work, do other activities only after expected work is completed)
5. Provide a break based on the reason for the student’s behavior for a specified length of time or at specified intervals dependent on the severity of the problem behavior(s) in the classroom: Every 10 minutes give paper and crayons for one minute.

MODIFIED STEP 5 WAS UTILIZED FOR LAST FOUR DATA POINTS IN FEEDBACK PHASE:

5. ***Provide a “break” based on the reason for the student’s behavior for a specified length of time or at specified intervals dependent on the severity of the problem behavior(s): Every 10 minutes provide a pre-correction, a nonverbal cue, or a praise statement based on student behavior.***

Appendix M

Intervention Plan – Dyad C

1. Provide a pre-correction to the student related to the alternatives to the problem behavior(s): “Remember to focus and do your work.”
2. Ignore problem behavior
3. Give the student a cue when problem behavior occurs in order to let the student know that he is exhibiting problem behaviors: Every 10 minutes give cue (throat clearing) if he is not doing when he needs to be doing.
4. Praise the student when alternative behaviors are used (Put away unnecessary materials, look at teacher or materials as appropriate)
5. Provide a break based on the reason for the student’s behavior for a specified length of time or at specified intervals dependent on the severity of the problem behavior(s) in the classroom: Every 10 minutes give pipe cleaner for one minute.

MODIFIED STEP 5 WAS UTILIZED DURING FEEDBACK PHASE:

5. ***Provide a “break” based on the reason for the student’s behavior for a specified length of time or at specified intervals dependent on the severity of the problem behavior(s): Every 10 minutes provide a pre-correction, a nonverbal cue, or a praise statement based on student behavior.***

Appendix N

Paraprofessional Training Session Steps

1. Schedule training session for approximately 1 hour with each paraprofessional.
2. Complete the Paraprofessional/Student Demographics Interview with the paraprofessional or have them complete it.
3. Identify with the paraprofessional a cue that he or she can give to the student during the intervention.
4. Train each paraprofessional with a short training session consisting of instruction, modeling, coaching, praise, and corrective feedback.
5. Complete an Observer Fidelity of Implementation Checklist for each practice scenario.
6. Provide instruction on the target behavior, Para Fidelity of Implementation Checklist, DBR, and the intervention.
    a. The individualized intervention will consist of:
        i. providing a pre-correction to the student related to the alternatives to the problem behavior(s) “and the ability to ask for breaks”,
        ii. ignoring problem behavior(s),
        iii. giving the student a cue when problem behavior(s) occur in order to let the student know that he or she is exhibiting problem behaviors “and can ask for a break”,
        iv. praising the student when alternative behaviors are used
        v. “and when the student asks for a break”, and
        vi. providing a “break” based on the reason for the student’s behavior for a specified length of time or at specified intervals dependent on the severity of the problem behavior(s) in the classroom.
7. Model how to complete the Para Fidelity of Implementation Checklist and DBR.
8. Pretend to be the student (exhibit the identified target behavior) and instruct the paraprofessional to practice the steps of the intervention until all relevant steps of the intervention have been completed at least one time.

9. Provide coaching, praise, and corrective feedback during the practice.
10. Have the paraprofessional practice completing the Para Fidelity of Implementation Checklist and DBR immediately after each practice session.
11. Practice until the paraprofessional receives 100% fidelity of implementation on the intervention on 3 consecutive practice scenarios.
    a. Record the percentage of fidelity from each practice scenario as a session in the Para Observation Data sheet and label as Training Phase.
12. Inform the paraprofessional that he or she should complete the intervention every day for one half hour during the specified time period and complete the Para Fidelity of Implementation Checklist and the DBR every day immediately after the intervention.
13. Discuss with the paraprofessional that he or she should speak with the student prior to the first intervention session to explain the intervention to the student (teach/explain alternative behaviors, cue, “break”).
14. Inform the paraprofessional that he or she should begin the following day, and that the data sheets will be collected each time that he or she is observed.
15. Provide the paraprofessional with a folder that contains dated Para Fidelity of Implementation Checklists and DBRs for a week or so. Make sure to label the sheets with the dyad code, target behavior, dates, etc.

Appendix O

Behavior Definition – Dyad A

Disruptive Behaviors: Engaging is behavior that is disruptive to the learning environment or bothersome to his peers

Examples: Talking out or yelling without raising his hand, raising his hand and talking about something that is unrelated to the current activity, talking to his paraprofessional during activities, fidgeting or moving in a way that bothers others or leads to a reprimand/warning/correction, leaving where he is supposed to be without direction from his paraprofessional or teacher, not following directions and requiring more than one prompt to comply

Non-examples: Raising his hand and talking about something that is related to the current activity, following directions the first time he is asked, fidgeting or moving around but not bothering others, asking for help

Possible Function: Adult attention

Appendix P

Behavior Definition – Dyad B

Off-Task Behaviors: Engaging in behavior that is unrelated to the activity taking place in the learning environment

Examples: Talking to para about unrelated topics, leaving his desk to talk or wander, doing activities other than what he was instructed to do (playing with materials), not working on the expected activity

Non-examples: Talking to para about instruction-related topics, doing other work or activities after expected work is completed

Possible Function: Avoid difficult or undesirable task

Appendix Q

Behavior Definition – Dyad C

Off-Task Behaviors: Engaging in behavior that is unrelated to the activity taking place in the learning environment

Examples: playing/fidgeting with materials, looking at places other than the instructor or materials, talking to paraprofessional about non-class-related topics, putting head down on desk.

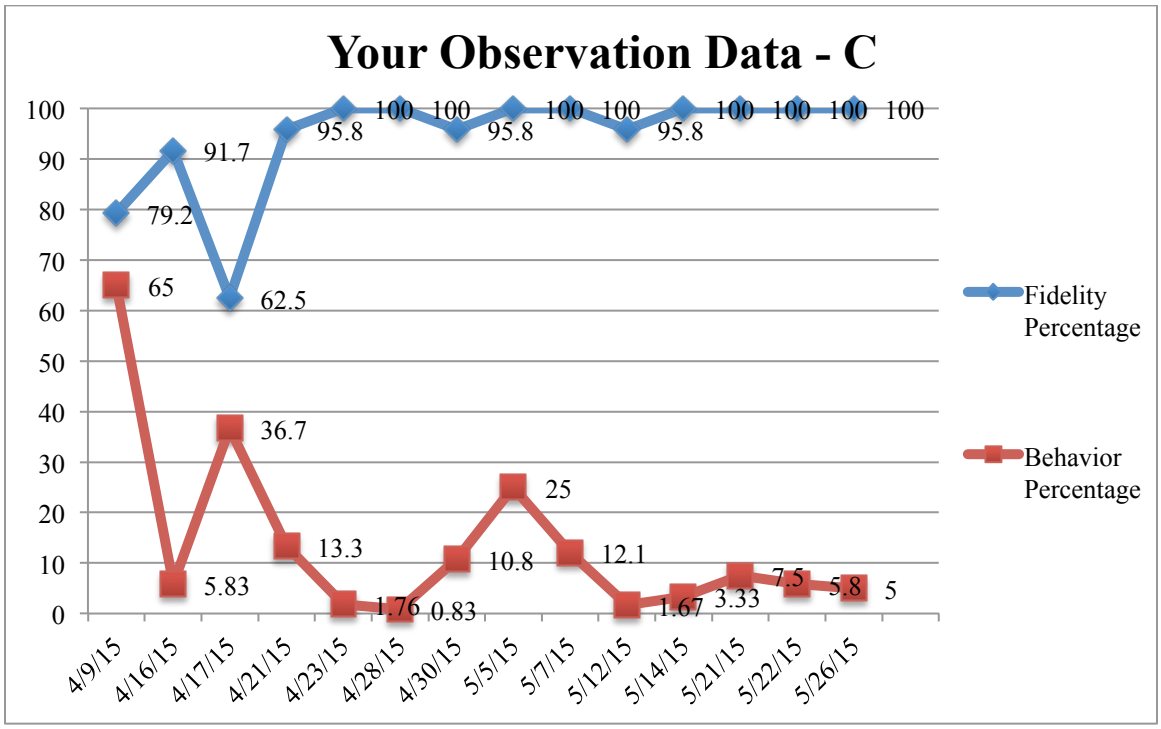
Non-examples: talking to paraprofessional about instruction-related topic or to address needs (go to bathroom, blow nose, etc.), doing other work after expected work is completed

Possible Function: Avoid difficult or undesirable task

Appendix R

Sample Performance Feedback Email

Hello,



Your fidelity of implementation was 100% today. You were able to provide 100% of the intervention as it was meant to be provided. This is the same as the last time we observed. The steps that you did not receive 100% fidelity on today were: none!

The student with whom you work demonstrated problem behavior 5% of the session today. This is lower than the last time we observed.

Please reply to this email with an answer to the following question:

I was able to provide ____% of the intervention as it was meant to be provided today.

Appendix S

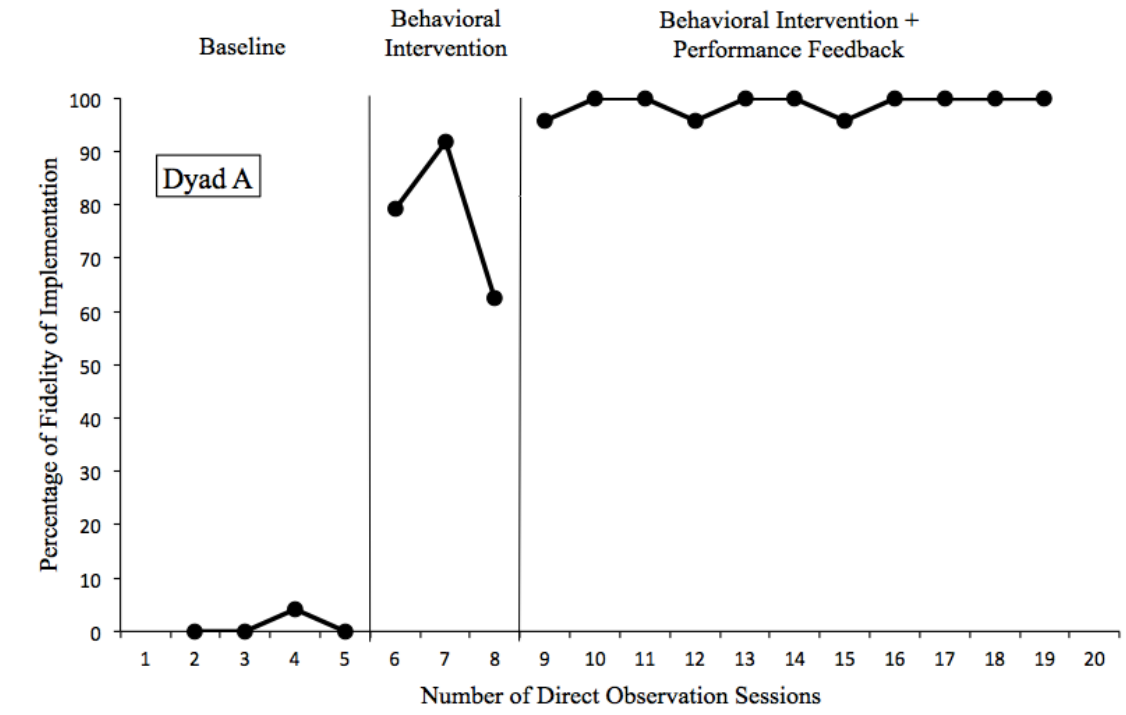


Figure 1. Paraprofessional A direct observation fidelity of implementation data.

Appendix T

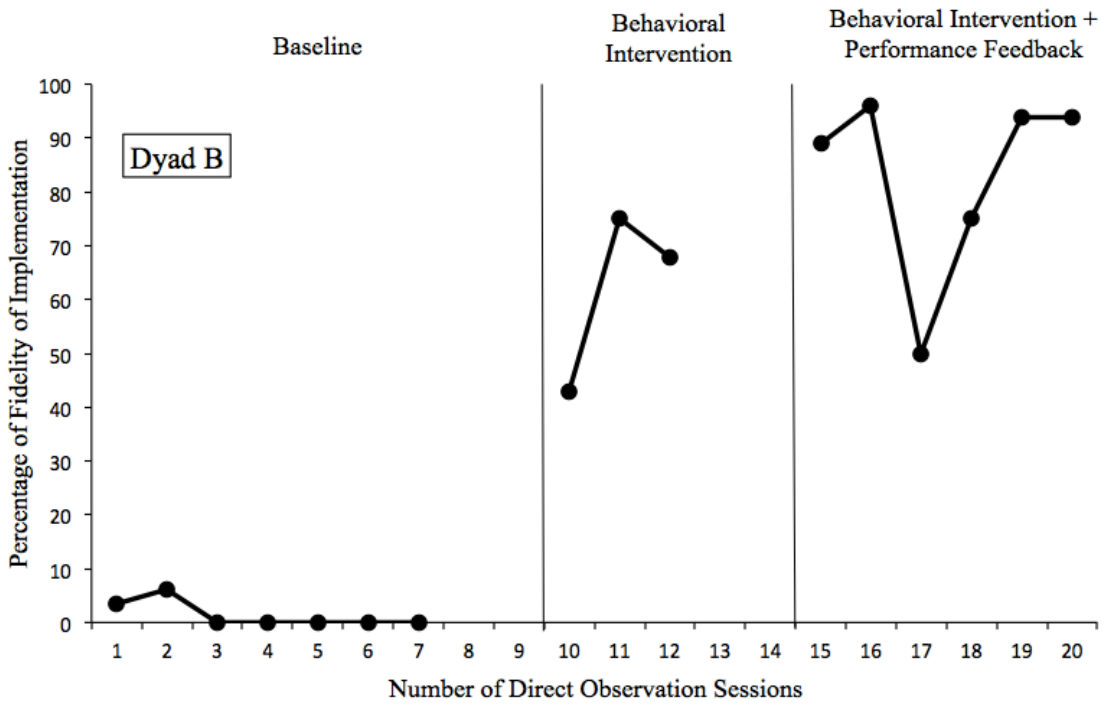


Figure 2. Paraprofessional B direct observation fidelity of implementation data.

Appendix U

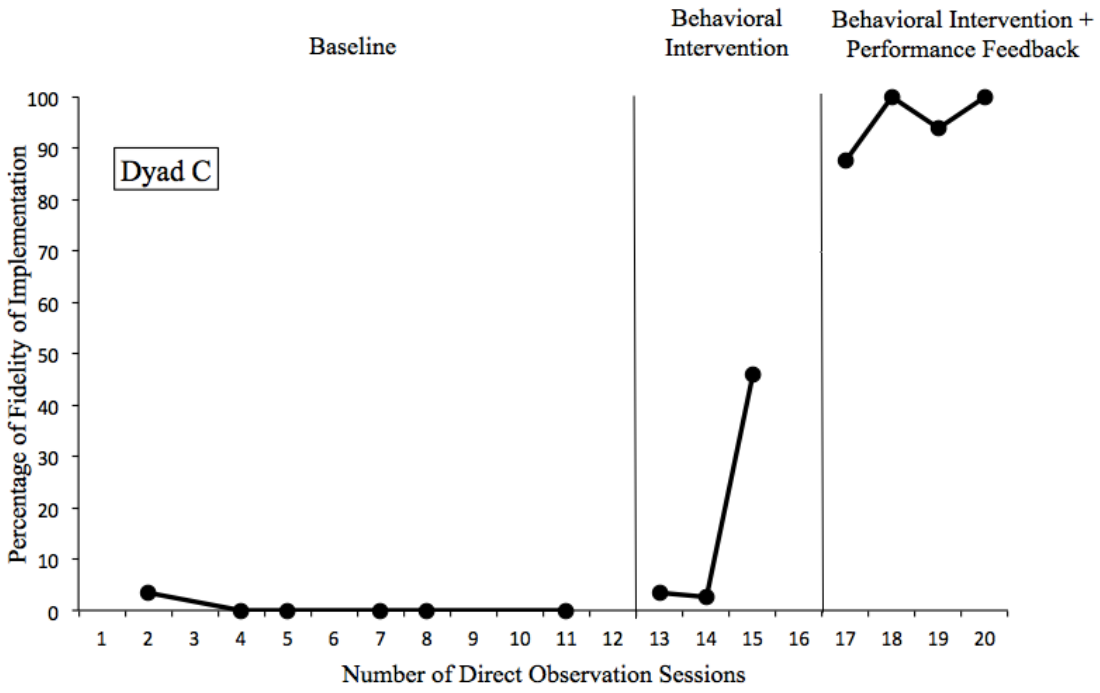


Figure 3. Paraprofessional C direct observation fidelity of implementation data.

Appendix V

Table 1

Direct Observation Mean Percentages of Fidelity

	Para A	Para B	Para C
Baseline	1.1	1.4	0.6
Behavioral Intervention	77.8	61.9	17.4
Behavioral Intervention plus Performance Feedback	98.9	83	95.4

Note. Fidelity = fidelity of implementation. Fidelity of implementation was measured by the observers with the OFIC.

Appendix W

Table 2

Paraprofessional Self-Report Fidelity Mean Percentages

	Para A	Para B	Para C
Behavioral Intervention	100	83.8	97.5
Behavioral Intervention plus Performance Feedback	97.6	79.7	97.6

Note. Fidelity = fidelity of implementation. Fidelity of implementation was self-reported by the paraprofessionals with the PFIC.

Appendix X

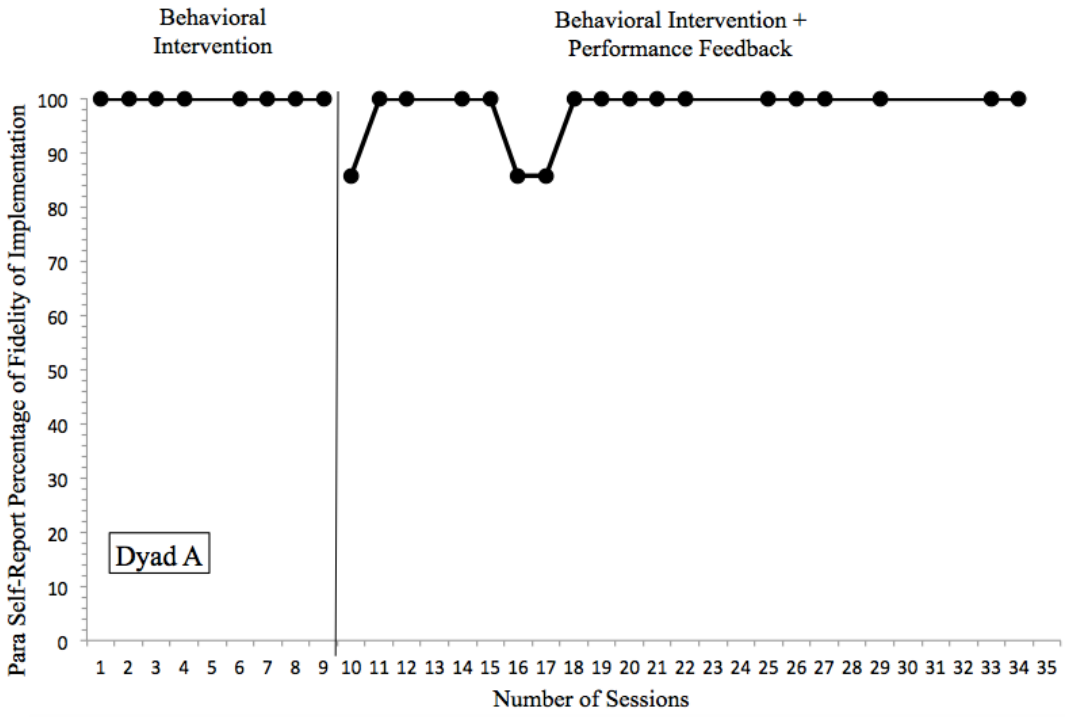


Figure 4. Paraprofessional A self-report fidelity of implementation data.

Appendix Y

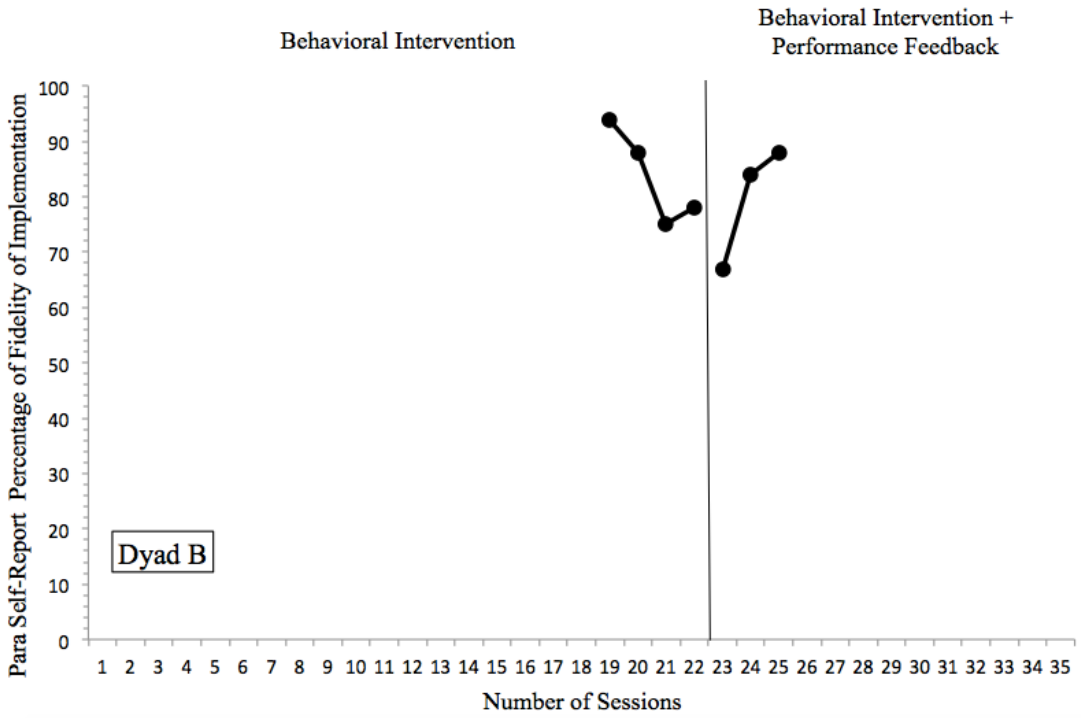


Figure 5. Paraprofessional B self-report fidelity of implementation data.

Appendix Z

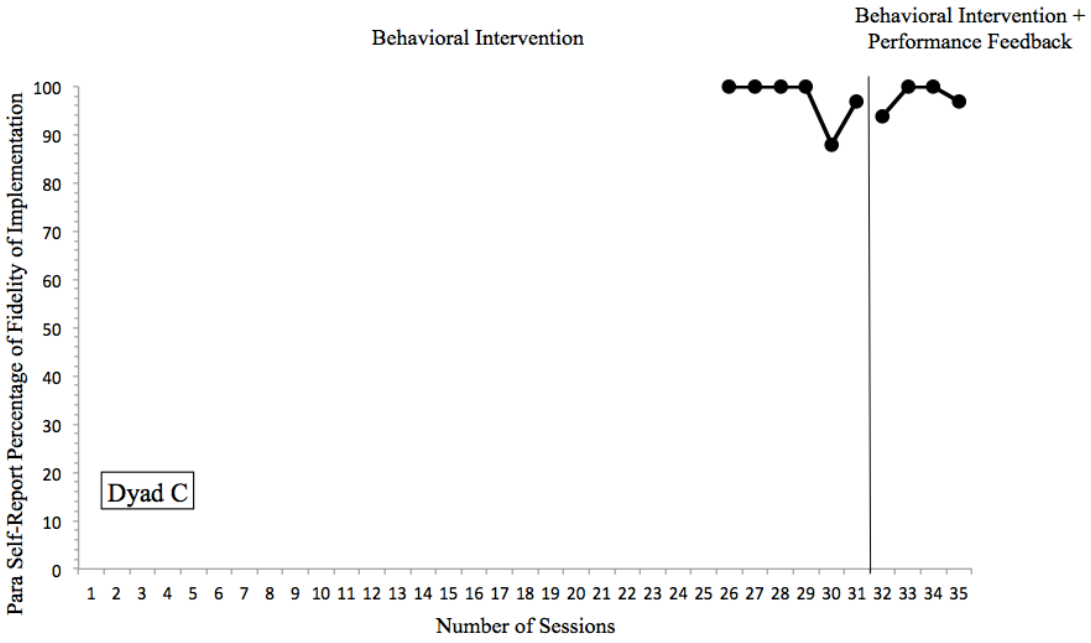


Figure 6. Paraprofessional C self-report fidelity of implementation data.

Appendix AA

Table 3

Direct Observation Mean Percentages of Student Behavior

	Student A	Student B	Student C
Baseline	31.4	11.3	16.5
Behavioral Intervention	35.8	8.3	12.5
Behavioral Intervention plus Performance Feedback	7.9	4.5	6.5

Note. Student behavior was measured with the DOPMS using momentary time sampling with 10-second intervals in order to obtain the percentage of intervals in which student behavior occurred. Student A exhibited disruptive behavior. Student B exhibited off-task behavior. Student C exhibited off-task behavior.

Appendix BB

Table 4

Paraprofessional DBR Mean Percentages

	Student A	Student B	Student C
Behavioral Intervention	45.5	50.8	36.2
Behavioral Intervention plus Performance Feedback	35.5	33.3	12.5

Note. Student behavior was measured by the paraprofessionals using DBR in order to record the percentage of total time student behavior occurred during the intervention session. Student A exhibited disruptive behavior. Student B exhibited off-task behavior. Student C exhibited off-task behavior.