


# The Effects of Didactic Instruction and Performance Feedback on Paraeducator Implementation of Behavior Support Strategies in Inclusive Settings

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## Abstract

Many paraeducators have no formal education beyond high school and are provided with minimal training once on the job. Furthermore, as more schools turn to inclusionary practices, the impetus for highly qualified paraeducators becomes more important. However, little research has examined efficient ways to train paraeducators who work in inclusive classrooms. Through an adapted alternating treatments design (AATD), the general and comparative effects of two prominent training approaches were assessed: didactic instruction and performance feedback. Analysis of these approaches on paraeducators' use of positive behavior support strategies in inclusive settings revealed that with an equal amount of training time for each approach, performance feedback consistently produced stronger immediate and maintained effects than didactic instruction.

## Keywords

paraeducators, inclusive classrooms, professional development, positive behavior supports

More than 400,000 full-time paraeducators are employed nationally to support school-age students who receive special education services (U.S. Department of Education, 2010), often spending most of the school day supporting these students in inclusive environments (Ashbaker & Morgan, 2012). In the general education environment, paraeducators are now assuming some responsibilities traditionally carried out by certified teachers (Maggin, Wehby, Moore-Partin, Robertson, & Oliver, 2009). Furthermore, a large part of their role also focuses on providing both adaptive and behavioral support services to students in inclusive settings. Specifically, paraeducators are now serving as primary behavior interventionists (Fisher & Pleasants, 2012), collecting student behavior data and managing student behavior (Maggin et al., 2009). Both Carter, O'Rourke, Sisco, and Pelsue (2009) and Fisher and Pleasants (2012) found that paraeducators generally spend a substantial portion of their workday implementing behavior management plans and providing behavior support, despite the fact that they may have no formal education on these topics. As a result, paraeducators may encounter a variety of barriers to effective implementation of student behavior support, such as lack of knowledge or feedback on effective strategies (Bambara, Goh, Kern, & Caskie, 2012).

Furthermore, when supporting students with disabilities in general education classrooms, paraeducators are often performing outside of the direct supervision of a special education teacher. With this expanding role of paraeducators, legislation (Every Student Succeeds Act, 2015; Individuals with Disabilities Education Improvement Act, 2004) recommends that paraeducators participate in some form of training. However, the parameters of such training are not clearly defined, leaving school districts to rely on the recommendations from the paraeducator training literature base.

Unfortunately, the research base surrounding paraeducator training is one of the least experimentally investigated areas of special education (Giangreco, Suter, & Doyle, 2010). Within this narrow literature base, qualitative findings reveal that paraeducators often lack the necessary training needed to support students with disabilities (Maggin

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et al., 2009), as training is generally unavailable, deficient, or limited in content (Hall, Grundon, Pop, & Romero, 2010). As a result, even paraeducators with many years of experience may have little knowledge of effective practices (Sobeck & Robertson, 2019). Concerns within the field have been raised about placing the potentially least trained staff with students who require the greatest level of support within the school structure (Carter et al., 2009). Teachers often attempt to fill this void by providing on-the-job training for paraeducators, even though they may not be prepared to do so (Douglas, Chapin, & Nolan, 2016).

Although experimental research on effective paraeducator training methods lacks, researchers have found that didactic instruction alone is not enough for teachers to maintain newly acquired skills (Poduska & Kurki, 2014) and training packages that include performance feedback have shown promising effects (Duchaine, Jolivet, & Fredrick, 2011). In spite of these findings in the teacher-training literature, didactic instruction continues to have a strong presence within the training practices in schools (Sobeck & Robertson, 2019). Most paraeducator-focused experimental studies rely on didactic instruction as the primary means of training (Koegel & Koegel, 2014), with only a few studies using performance feedback for training paraeducators (Robinson, 2011).

Although performance feedback has shown to be a successful training approach for teachers (Cornelius & Nargo, 2014), it is unclear as to whether this finding holds true to training paraeducators, who typically have far less formal education in special education and serve in different roles. It is possible that without the content knowledge possessed by teachers, paraeducators would be less responsive to performance feedback and instead would benefit more from didactic instruction. In addition, with the overwhelmed schedules of staff in special education and with paraeducator training often overlooked (Carter et al., 2009), identifying which training approach is most effective may help school leaders plan professional development for paraeducators that is both meaningful and efficient. Therefore, the purpose of this study was to examine the general and comparative effectiveness of didactic instruction and performance feedback on paraeducators' use of positive behavior support strategies for children with disabilities in inclusive settings. Specifically, this study addressed the following research questions: (a) Does didactic instruction increase paraeducators' use of positive behavior support strategies? (b) Does performance feedback increase paraeducators' use of positive behavior support strategies? and (c) Is there a difference in paraeducators' immediate and sustained use of positive behavior support strategies when trained using didactic instruction or performance feedback?

## Method

### Setting

A rural school district in southwestern Pennsylvania served as the setting. The district had a total enrollment of 2,355 students, of which, 35% qualified for a free and reduced lunch and 18% were supported with special education services. Across the school district, 94.3% were identified as being Caucasian, 3.1% as African American, 1.8% as multiracial and 0.4% as Hispanic. Within the district, two elementary schools serving students in grades Kindergarten to fifth, and one middle school, serving students in grades sixth to eighth, participated in the study. Four general education classrooms that employed an inclusive teaching model with one classroom teacher and one special education paraeducator per classroom were included in the study. Table 1 shows the demographics for each classroom setting and the corresponding paraeducator participant.

### Participants

After an invitation to participate in the study and initial meeting with the principal investigator (PI), the school district's supervisor of special education recommended five paraeducators who fit the inclusion criteria. The PI met with the five paraeducators and invited them to participate in the study. After learning about the study, four paraeducators felt that they would be a good fit for the study and agreed to participate.

Paraeducators were included in the study if they (a) worked in a public school district, (b) supported a minimum of two students with supplemental support through an Individualized Education Plan (IEP) in an inclusive setting, (c) provided behavioral support, (d) had not been formally trained on the positive behavioral support strategies targeted within this study, and (e) demonstrated minimal (i.e., three occurrences) or no use of the strategies during screening observations. Paraeducator participants completed a background questionnaire that asked them questions specific to demographic information and inclusion criteria. The information obtained through the questionnaire was then confirmed by the supervisor of special education. Table 1 shows each paraeducator's classroom and student information.

### Dependent Variables

The dependent variables (DVs) consisted of three positive behavior support strategies implemented by the paraeducators (see Table 2). The behaviors were measured using a frequency count during continuous 20-minute video-taped observations during academic instruction, once a day and five school-days per week. Effective behavior specific praise

**Table 1.** Paraeducator and Classroom Information.

Para	Gender	Age	Race	Content area	Grade	Number of students in classroom	Years of experience within & outside the district	Education attainment	Number of IEP students in classroom
Abby	Female	57	Caucasian	Pre-Biology	8	25	13	1 year college	8
Beth	Female	53	Caucasian	World Geography	7	25	18	Some college credits	7
Carol	Female	47	Caucasian	Social Studies	4	18	7	Bachelors	7
Dana	Female	57	Caucasian	Science	5	24	10	3 years college	2

Note. IEP = individualized education plan.

**Table 2.** Examples, Nonexamples, Steps, and Supportive Research per Each Dependent Variable.

Strategy	Examples	Nonexamples	Steps	Supportive research
BSP	<ol style="list-style-type: none"> <li>1. "Excellent adding those numbers."</li> <li>2. "I like how you showed your work on the math problems."</li> <li>3. "Thank you for starting your work quietly and quickly."</li> </ol>	<ol style="list-style-type: none"> <li>1. "Good job."</li> <li>2. "Great idea."</li> <li>3. "You did problems two and three."</li> </ol>	<ol style="list-style-type: none"> <li>1. Gain student's attention.</li> <li>2. Deliver praise.</li> <li>3. Identify the behavior being reinforced.</li> <li>4. Maintain an affirmative or neutral tone.</li> <li>5. Wait time of 3 seconds.</li> </ol>	Duchaine, Jolivet, and Fredrick (2011), Hawkins and Heflin (2011), Simonsen et al. (2010)
OTR	<ol style="list-style-type: none"> <li>1. Who is the author of the story?"</li> <li>2. "Which two countries were involved in the Cold War?"</li> <li>3. "How many wheels are we going to need to build our car?"</li> </ol>	<ol style="list-style-type: none"> <li>1. "Answer your math problems."</li> <li>2. "Read paragraph one."</li> <li>3. "Are you learning this?"</li> </ol>	<ol style="list-style-type: none"> <li>1. Gain student's attention.</li> <li>2. Deliver one academic question.</li> <li>3. OTR is concise and clear.</li> <li>4. Maintain an affirmative or neutral tone.</li> <li>5. Wait time of 3 seconds.</li> </ol>	Conroy et al. (2008), Schnor, Freeman-Green, and Test (2015); Simonsen et al. (2010)
EIC	<ol style="list-style-type: none"> <li>1. "Sit down."</li> <li>2. "Look at the teacher."</li> <li>3. "Walk to the table and get two pieces of paper."</li> </ol>	<ol style="list-style-type: none"> <li>1. "Sit down, write your name on your paper, get your book out and turn to page 65."</li> <li>2. "Shhh, Listen."</li> <li>3. "Pay attention."</li> </ol>	<ol style="list-style-type: none"> <li>1. Gain student's attention.</li> <li>2. Deliver one to three commands(s).</li> <li>3. EIC is concise and clear.</li> <li>4. Firm, quiet tone of voice.</li> <li>5. Wait time of 3 seconds.</li> </ol>	Kern and Clemens (2007); Matheson and Shriver (2005)

Note. BSP = behavior-specific praise; OTR = opportunities to respond; EIC = effective instruction and commands.

(BSP) was defined as contingent verbal statements of approval provided to a student, or students, by a paraeducator that includes a reference to or a description of the behavior being praised (Hawkins & Heflin, 2011). Effective opportunities to respond (OTR) was defined as an interaction between a paraeducator formulated question and the academic response given by the student or students (Schnor, Freeman-Green, & Test, 2015). Specifically, effective OTR was described as a questioning technique that served to begin, review, or extend a learning trial. Questions had to focus on who, what, when, where, or why and had to reference the content the student was learning. Questions that focused on *how* the student was learning were coded as ineffective. For example, asking a student if they understand the

directions or if they are doing ok, were coded as ineffective. Questions could have been presented verbally or in written form and did not need to be successful in obtaining a correct student response. Effective instruction and commands (EIC) were defined as the delivery of requests or commands given by the paraeducator that were behavioral in nature. Each direction had to contain a "do" command that clearly stated the behavior for the student to engage in.

### Independent Variables

Two independent variables (IVs) were measured within the study: a didactic instruction training approach and a performance feedback training approach. The matching of the IVs

**Table 3.** Independent Variable and Dependent Variable Combinations During the Treatment Condition per Participant.

Para	BSP	OTR	EIC
Abby & Carol	180 min didactic	180 min performance feedback	Control
Beth & Dana	180 min performance feedback	180 min didactic	Control

Note. BSP = behavior-specific praise; OTR = opportunities to respond; EIC = effective instructions and commands.

to the DVs was counterbalanced across the four participants. Each participant engaged in 180 minutes of each training approach to control for time (see Table 3). The didactic instruction approach consisted of one-half day (i.e., 3 hours) of presentation-style training. Although only four paraeducators participated in the study, the training was provided to all of the paraeducator staff within the district to best mimic a traditional in-service day training. Of the four paraeducators that participated in the study, two attended the morning session on OTR and did not attend the afternoon session, while the other two paraeducators attended the afternoon session on BSP and did not attend the morning session. During the didactic instruction sessions, the PI and research assistant used a power point presentation to describe the strategy, provide the background and rationale for its use, share examples and nonexamples, and model the strategy. Time was given for paraeducators to discuss the strategy in both small groups and large group formats and to ask questions throughout the presentation. Paraeducators also watched a video clip of the strategies in action and completed two activities that presented scenarios specific to the strategy.

The performance feedback intervention consisted of two elements: an initial one-on-one meeting which each paraeducator was held in which a handout describing the strategy was given, then, nine individual performance feedback sessions were conducted. During the initial meeting, the PI provided the participant with a two-page handout of the strategy that contained a description, rationale, examples, nonexamples, and strategy steps. The participant had 10 minutes to read through the handout and ask the PI questions regarding the strategy and the performance feedback process. The PI observed each paraeducator for a 15-minute period of time during the targeted inclusive classroom setting each school day and recorded the frequency at which the paraeducator implemented the targeted strategy with fidelity. This frequency count was then shown to the paraeducator during the 5-minute performance feedback meeting in the form of a graph. Observations continued until nine observation sessions were completed. During the performance feedback 5-minute discussion, the PI shared a minimum of two strengths, as well as of two areas for improvement specific to the targeted strategy, then showed the paraeducator a graphical display of their progress relative to the strategy in which they were receiving performance feedback. One minute was also allocated for

questions at the end of each feedback session. The other positive behavior support strategy taught through didactic instruction was not discussed at any point during the performance feedback sessions. The paraeducators were not aware that data were being collected on their use of EIC and no instruction or feedback was given regarding EIC.

### Design

An adapted alternating treatments design (AATD) replicated across four paraeducators was employed. An AATD is a variation of the alternating treatments design (ATD; Sindelar, Rosenberg, & Wilson, 1985), where treatments are applied to different, but equally complex, behaviors (Wolery, Gast, & Ledford, 2014). The targeted behaviors must also be functionally independent from one another so that one behavior does not change when the other is under treatment (Wolery et al., 2014; Wolery, Bailey, & Sugai, 1988). Task equivalence is established by a logical analysis of the behaviors and baseline data. A baseline that shows equivalent performance of the behaviors is followed by a treatments condition in which the acquisition of one behavior taught by one approach is compared to the acquisition of the second behavior taught by the second approach (Sindelar et al., 1985). The treatments condition also contains a control condition which serves to support the internal validity of the design. A final maintenance phase is included in which all of the DVs are probed (Wolery et al., 2014).

The training approaches were counterbalanced with the DVs across all four paraeducators, supporting the internal validity of the study. Abby and Carol received performance feedback on BSP and didactic instruction on OTR, while Beth and Dana received performance feedback on OTR and didactic instruction on BSP. Data were also collected on the paraeducators' use of EIC which served as a control measure. Furthermore, to make the amount of time needed for training equal among the training programs, the amount of time the paraeducators participated in the didactic instruction was equal to the amount of time paraeducators spent in performance feedback sessions (e.g., 180 minutes). Controlling for time allowed the PI to evaluate the two training approaches based on the amount of time a school administrator, or other personnel, would need to carry out the approach.

A logical analysis was completed to assess the similarity and difficulty of the DVs (Sindelar et al., 1985). The skills

were matched across DVs to ensure that number and nature of the requirements needed to complete each skill within each DV were equal, but functionally different across all DVs (Wolery et al., 2014). Seven practitioners and researchers who were blind to the purpose of the study reviewed a detailed write-up of each strategy and completed a rubric comparing the strategies. Practitioner reviewers held a master's degree in education and had a minimum of 5 years of teaching experience. Higher education faculty reviewers held a doctoral degree in special education and had earned tenure status (e.g., minimum of 7 years of service) at their institution of higher education. The rubric required reviewers to read the thorough description of each strategy, describe the function and topography of each strategy, answer yes or no questions, and assess the implementation difficulty of each strategy. The same rubric was used for all three DVs. Qualitative data obtained from the rubric were coded and quantitative data (e.g., yes or no questions) were analyzed using percentages. Across all respondents, agreement scores ranged between 86% and 100%.

Finally, baseline data were collected and showed similarities among the paraeducators' use of the DVs before intervening.

### Procedures

**Screening.** All four possible paraeducator participants completed a questionnaire that focused on their demographic information, current job responsibilities, past experiences, completed trainings, their perspective on their role, as well as any behavior support strategies they felt they use most often. The second part of the screening process involved classroom observations. The four paraeducators were observed to ensure that they were not currently using the targeted antecedent strategies consistently and with fidelity. Data were collected on all three targeted positive behavioral support strategies. The PI assessed all of the screening videos while a research assistant also assessed 50% of the screening videos. All four paraeducators met the inclusion criteria and were able to participate in the study.

**Baseline.** Upon obtaining Institutional Review Board (IRB) approval, baseline began. During baseline, the paraeducators continued with business as usual without instruction or feedback given. The paraeducators were unaware of the positive behavior support strategies being assessed.

**Intervention.** During intervention, the two IVs and a control measure were assessed. All four paraeducators participated in the 3-hour didactic instruction training specific to one of the positive behavior support strategies, then the following school day, the PI completed the 10-minute strategy description on the alternate positive behavior support strategy. Performance feedback sessions began the next day. All for

paraeducators engaged in nine 20-minute performance feedback sessions. Data were collected on all three DVs throughout the intervention phase through videotaped sessions. The intervention phase concluded when the paraeducators participated in nine 20-minute performance feedback sessions (i.e., 180 minutes).

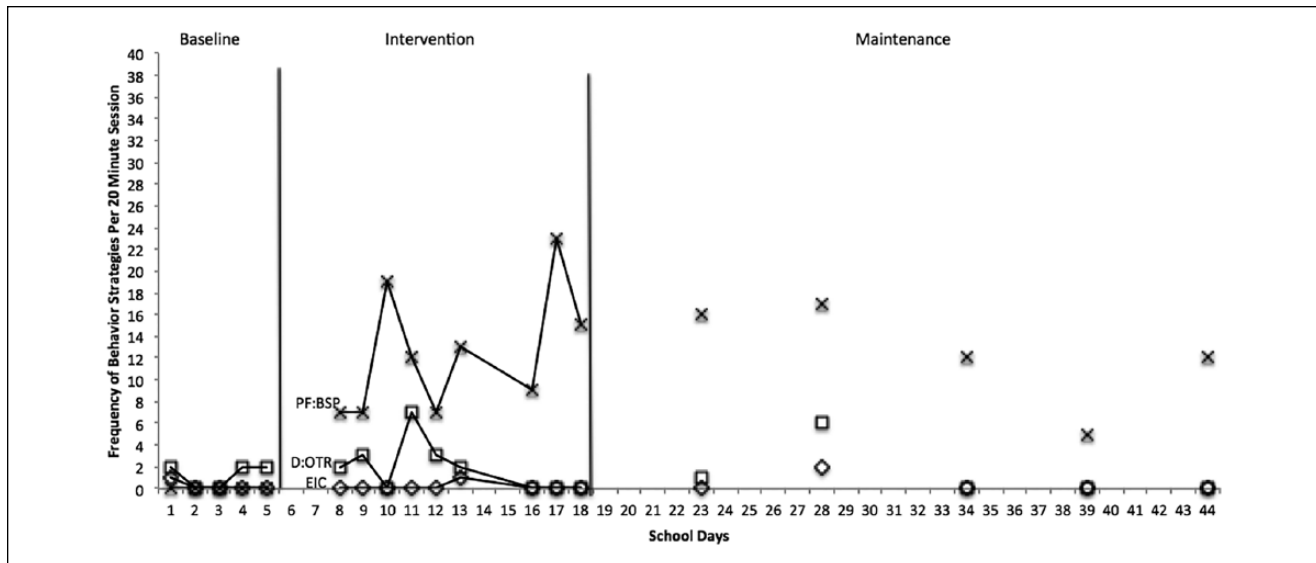
**Maintenance.** During maintenance, no performance feedback sessions were provided, nor were any didactic presentations given. Paraeducators continued to be assessed on their use of all three DVs. The same class was videotaped twice a week for five consecutive weeks following the conclusion of the intervention condition. The PI randomly selected one of the two weekly videos to code for maintenance data. Maintenance concluded at the end of 5 weeks.

### Implementation Fidelity

A research assistant, a special education doctoral student, and a Board-Certified Behavior Analyst (BCBA) with relevant work experience (e.g., 8 years of experience working with paraeducators, families, and therapeutic staff support personnel) and a similar research experience (e.g., paraeducators and Applied Behavior Analysis strategies) assessed the implementation fidelity for all training components. Implementation fidelity was assessed in vivo by the PI and research assistant for both the OTR and BSP didactic sessions. Using a fidelity checklist of presentation components, a score of 100% was obtained for both sessions. To ensure that all participants received the same dosage and quality of performance feedback, a fidelity checklist was used. A mean of 95% (range = 80%–100%) was calculated for all four of the strategy review sessions, and a mean of 100% was obtained for 33% of the performance feedback sessions. A score of 80% was recorded for Carol during the strategy review, as she declined the 2 minutes to read through the strategy description handout. Therefore, the total mean for all implementation fidelity components was 99%.

### Interobserver Agreement

The same research assistant was trained to conduct point by point Interobserver Agreement (IOA). After reviewing the coding scheme for data collection specific to the DVs, the PI and research assistant practiced coding 15-minute sample videos. Training continued until a score of 80% or higher was reached across three 15-minute videos. An agreement was defined as both the PI and research assistant scoring an occurrence of the same DV within 3 seconds of one another. The PI and research assistant's total number of agreements were divided by the number of agreement plus disagreement and multiplied by 100 (Watkins & Pacheco, 2000) to obtain an IOA percentage for each phase and each paraeducator. The research assistant coded 32% of sessions,



**Figure 1.** Frequency of positive behavior support strategies for Abby.

Note. PF: BSP = Abby received performance feedback on BSP; D: OTR = Abby received didactic instruction on OTR; EIC = Abby did not receive any training on EIC as it served as a control.

across all conditions and all four participants. The mean IOA for baseline across participants was 100%, intervention was 94% and maintenance was 95%. The mean IOA for each participant across phases was 98% for Abby, 97% for Beth, 94% for Carol, and 95% for Dana. The total mean IOA across all phases and participants was 96%.

## Results

Data were visually analyzed by determining the mean, median, range, absolute level, and split middle trend of each DV in the baseline and maintenance phases and each IV/DV combination during the treatment condition (Lane & Gast, 2013).

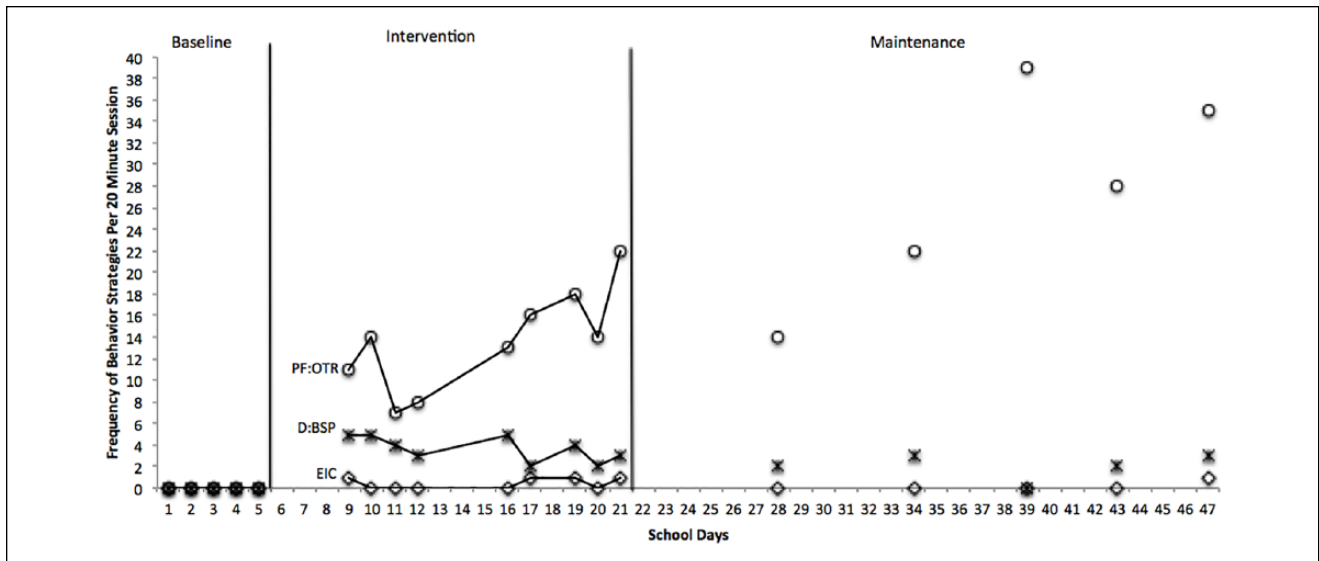
### Abby

During baseline, Abby consistently demonstrated minimal use of effective OTR ( $M = 1.2$ ), BSP ( $M = 0$ ), and EIC ( $M = 0.2$ ) across five observation sessions. The rate of responding was low and stable across all three DVs. Upon completing the OTR didactic training session, Abby exhibited a minimal increase in her use of OTR, peaking at seven occurrences during session 11 ( $M = 1.9$ ). Once performance feedback on BSP began, Abby demonstrated an increasing trend with some variability reaching 23 occurrences during session 17. Abby's use of BSP maintained at a higher level in the intervention phase ( $M = 12.4$ ) than in baseline ( $M = 0$ ), with the frequency of BSP ranging from 7 to 23 across sessions. Control data showed that Abby had one EIC during session 13. All other

intervention sessions resulted in an EIC score of 0 ( $M = .1$ ). Maintenance data were collected 5, 10, 16, 21, and 26 days after the conclusion of the intervention phase. Four of the five maintenance sessions (80%) showed no use of OTR ( $M = 1.4$ ). Although some variability, Abby continued to deliver a moderate rate of BSP, reaching 17 occurrences during session 28 ( $M = 12.4$ ). Finally, four of the five (80%) EIC maintenance data points showed no occurrences of EIC, with one data point showing only two occurrences during session 28 ( $M = .4$ ). Figure 1 shows Abby's performance across all conditions.

### Beth

During baseline, Beth consistently demonstrated no use of effective OTR ( $M = 0$ ), BSP ( $M = 0$ ), and EIC ( $M = 0$ ) across five observation sessions. Upon completing the didactic training session on BSP, Beth's rate of BSP increased from 0 in baseline, to 5 in sessions 9 and 10. Upon obtaining a rate of five BSPs in session 10, two downward trend followed in sessions 11 and 12 and then again in sessions 17–21 ( $M = 3.67$ ). Once performance feedback was implemented, OTR immediately increased from 0 in baseline to 11 in session 9. An increasing trend was demonstrated throughout the intervention phase ( $M = 13.7$ ). Beth demonstrated minimal to no use of EIC ( $M = .4$ ). Maintenance data were collected at 7, 13, 18, 22, and 25 days after the conclusion of the intervention phase. One of the five sessions (20%) showed no use of BSP and the remaining four BSP maintenance data points showed minimal use ( $M = 2$ ). Beth demonstrated an increasing trend of



**Figure 2.** Frequency of positive behavior support strategies for Beth.

Note. PF: OTR = Beth received performance feedback on OTR; D: BSP = Beth received didactic instruction on BSP; EIC = Beth did not receive any training on EIC as it served as a control.

OTR during maintenance, peaking at 39 occurrences during session 39 ( $M = 27.6$ ). Only one occurrence of EIC was demonstrated during session 47 ( $M = .2$ ). Figure 2 shows Beth's performance across all conditions.

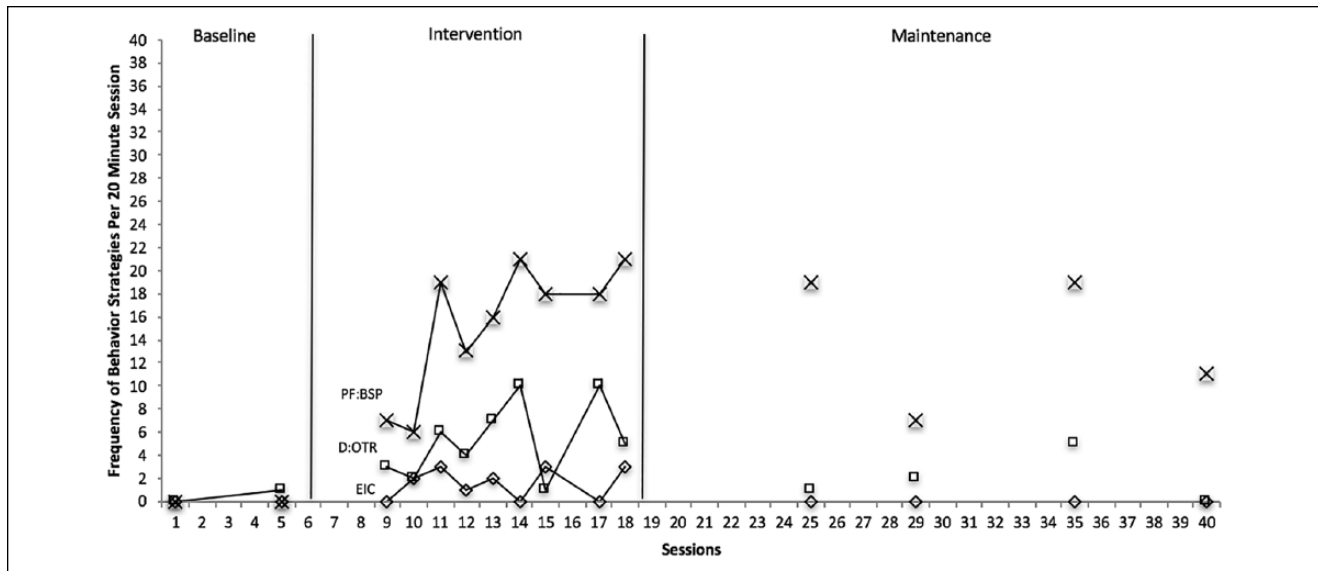
### Carol

Due to technology challenges, Carol was limited to two baseline observations sessions. With baseline not required within an AATD (Kratochwill et al., 2010), and with Carol's stable responding, the PI moved her into intervention to for Carol to participate in the didactic instruction condition accordingly. The participants were to engage in a didactic instruction session designed to mimic a traditional, group in-service day training. Carol demonstrated minimal to no use of BSP ( $M = 0$ ), EIC ( $M = 0$ ), and OTR ( $M = .5$ ). Upon completing the didactic training session on OTR, Carol's rate of OTR increased from 0 in baseline to 3 in session 9. The remaining eight intervention OTR data points show a slight increasing trend with variability ( $M = 5.3$ ). Once performance feedback was implemented, Carol's use of BSP immediately increased from 0 in baseline to 7 in session 9. The frequency of BSP steadily increased throughout intervention ( $M = 15.4$ ), with one substantial increase in performance between sessions 10 and 11. A slight increase in Carol's use of EIC was noted during intervention ( $M = 1.55$ ). Maintenance data were collected 5, 11, 17, 21, and 22 days after the conclusion of the intervention phase. Carol continued to use OTR minimally ( $M = 2$ ), while demonstrating a higher rate of BSP. She demonstrated a slight downward trend and reported not feeling well during

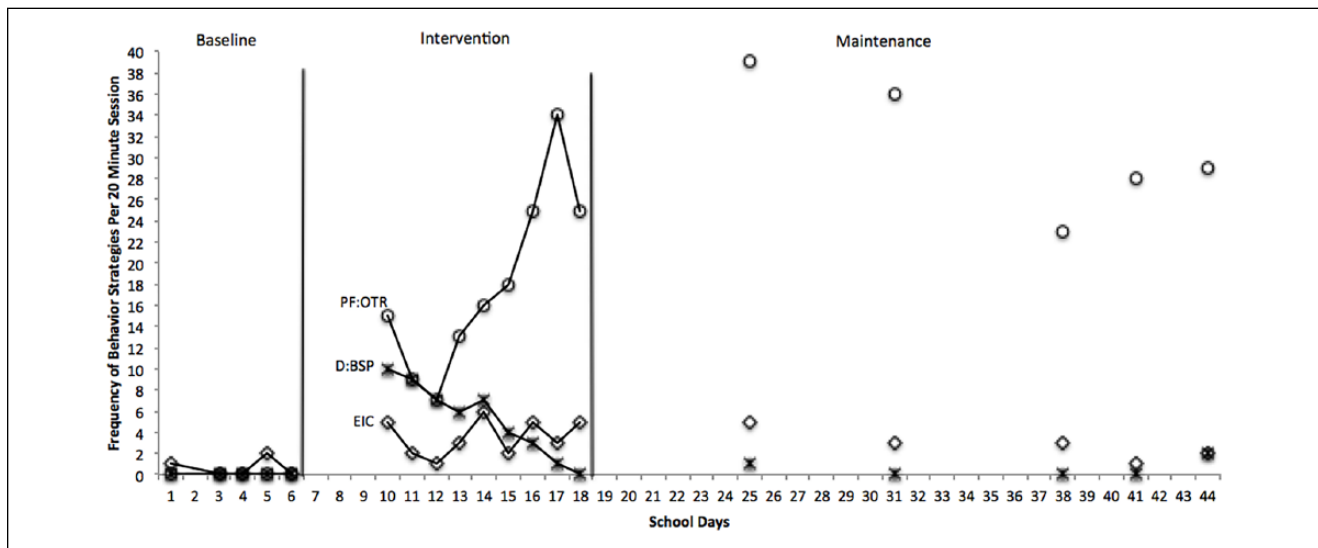
session 29. Although a slight downward trend is noted, she continued to deliver a moderate to high rate of BSP throughout the maintenance condition ( $M = 16.4$ ). Carol did not demonstrate any correct uses of EIC during maintenance ( $M = 0$ ). Figure 3 shows Carol's performance across all conditions.

### Dana

During baseline, Dana consistently demonstrated minimal to no use of effective OTR ( $M = 0$ ), BSP ( $M = 0$ ), and EIC ( $M = 0.6$ ) across five observation sessions. Upon completing the didactic training session on BSP, Dana's rate of BSP increased from 0 in baseline to 10 in session 10. Once reaching a rate of 10 BSPs during session 10, a steady downward trend followed in all subsequent sessions, reaching 0 in session 18 ( $M = 5.2$ ). Once performance feedback was given, Dana's use of OTR immediately increased from 0 in baseline to 15 in session 10. The frequency of OTR slightly decreased during sessions 11 and 12 but then continued with an increasing trend steadily over the next several sessions peaking 34 during session 17 ( $M = 18$ ). During intervention, Dana demonstrated some improvement in her use of EIC ( $M = 3.6$ ). Maintenance data were collected 7, 13, 20, 23, and 26 days after the conclusion of the intervention phase. During maintenance Dana demonstrated BSP minimally ( $M = .6$ ). Relative to OTR, a downward trend was noted, followed by an increasing trend. Data decreased from 39 occurrences of OTR during session 25 to 23 occurrences during session 38, then steadily increased to 28 during session 41 and 29 during session 44 ( $M = 31$ ). During



**Figure 3.** Frequency of positive behavior support strategies for Carol.  
 Note. PF: BSP = Carol received performance feedback on BSP; D: OTR = Carol received didactic instruction on OTR; EIC = Carol did not receive any training on EIC as it served as a control.



**Figure 4.** Frequency of positive behavior support strategies for Dana.  
 Note. PF: OTR = Dana received performance feedback on OTR; D: BSP = Dana received didactic instruction on BSP; EIC = Dana did not receive any training on EIC as it served as a control.

maintenance, Dana used EIC minimally, demonstrating a slight downward trend ( $M = 1.8$ ). Figure 4 shows Dana’s performance across all conditions.

**Social Validity**

The paraeducators completed a 13-statement 5-point Likert-type scale questionnaire with an additional five open-ended questions, and the classroom teachers, who were blind to

the DVs in the study, completed a 13-statement 5-point Likert-type scale questionnaire with two additional open-ended questions. Both of the questionnaires were researcher created and sought to gain insight into the effects of the training, ease of use of the strategies, overall opinions of the training and strategies, time associated with the training and strategies, preference of training, and the maintenance of the strategies. Feedback provided by the paraeducators indicated that they felt performance feedback was more



beneficial in both learning and maintaining the strategies ( $M = 4.75$ ,  $M = 5$ ). The paraeducators reported that the feedback was most helpful because it was immediate ( $N = 3$ ) and because it provided them with specific ways to improve their performance ( $N = 3$ ). Across all 13 questions, paraeducators reported an average rating of 4.2. Information provided by the classroom teachers indicated that they observed the paraeducators using the strategy taught through performance feedback more, BSP ( $M = 4.5$ ) and OTR ( $M = 4$ ), respectively. All of the teachers stated that the paraeducator interacting with the students did not disrupt their teaching ( $M = 4.5$ ) and felt that the paraeducator learned something new from the trainings ( $M = 4.75$ ). Across all 13 questions, classroom teachers reported an average rating of 4.3.

## Discussion

Upon completion of the didactic instruction session, all four paraeducators experienced an increase in their performance to a slightly higher level than baseline. However, three of the four paraeducators demonstrated a decreasing trend immediately following the initial increase, while one paraeducator (i.e., Carol) continued to exhibit variable performance on postdidactic training measures. From baseline to intervention, the DVs taught using didactic instruction had a mean increase of only four occurrences (range = 1.67–5.33) across all four paraeducators. This may suggest that although didactic instruction produces some immediate behavior change, it does not result in sustained improvement. The paraeducators' performance during maintenance also supports this notion as the didactic instruction data during the maintenance phase shows that all four paraeducators continued to perform at a lower level compared to the intervention phase.

The results also demonstrated a clear experimental effect between performance feedback and the paraeducators' use of the positive behavior support strategies. These data support the findings of Robinson (2011) by demonstrating a substantial improvement in performance as a result of a training program that relied on performance feedback. All four paraeducators experienced a considerable increase in performance across both OTR and BSP with performance feedback. From baseline to intervention, a mean increase of 15 occurrences (range = 12.5–18) was noted across all four paraeducators. Furthermore, paraeducators continued to use the strategy taught using performance feedback at a similar or higher level during maintenance. This finding may indicate that performance feedback not only helps support immediate behavior change, but sustained behavior change as well. Performance feedback is in essence a shaping procedure, in that successive approximations of the target skill (e.g., OTR, BSP) are verbally reinforced while incorrect attempts are corrected. In addition, performance feedback is

implemented in the context in which the participant is to use the skill, thereby promoting generalization (Brock & Carter, 2015). In contrast, didactic instruction supplies information but does not provide shaping of the skill in the relevant context. These differences may, in part, explain the superiority of performance feedback during intervention and maintenance to didactic instruction for these types of skills. Furthermore, the fact that paraeducators implemented a higher rate of target skills during the intervention phase of performance feedback may have led to increased contact with the natural contingencies surrounding the use of those skills (i.e., improved student behavior) as well as greater fluency in using those skills.

The control condition served to examine the effects of the absence of training. During baseline and intervention, all four paraeducators had minimal to no EICs. Although the DVs were functionally independent from one another, several of the steps to complete each strategy were similar (e.g., gaining student's attention and wait time). These similarities may have allowed for the paraeducators to unknowingly generalize these steps to EIC, resulting in a slight increase in the rate of EIC during intervention. These results show that if training is not provided, paraeducators will continue to implement evidence-based practices minimally, or not at all.

Comparatively examining the data across IVs reveals that performance feedback was the superior training approach for these four paraeducators, as it consistently outperformed didactic instruction across all four paraeducators and across both DVs. The strategy taught using didactic instruction had either a decreasing trend or variable data. These trends remained the same within the maintenance phase as well.

Furthermore, comparing the results of the DVs also supports the notion that the difficulty of the DVs was equivalent. If one DV was easier to implement than the others, then the data may have shown the easier DV being used at a higher frequency across all for paraeducators, regardless of the IV being implemented. Each paraeducator demonstrated three distinct levels of performance, with the DV taught using performance feedback always at the highest level, upholding the findings of the task similarity analysis and further strengthening the internal validity of the study.

Although time was controlled for in terms of the amount of time needed to employ the strategies, there was a difference in the amount of time the paraeducators were engaged in direct instruction. The didactic instruction session required the paraeducators to engage in 180 minutes of direct instruction time with the PI, while the performance feedback approach included only 55 minutes. During the performance feedback strategy, direct instruction occurred when the PI completed the 10-minute strategy review and when the 5 minutes of feedback were given during each performance feedback session. The remainder of the

performance feedback approach consisted of observations. Although the paraeducators engaged in 125 minutes of direct instruction with the didactic training, they still performed significantly lower on the DV associated with didactic instruction than they did the DV taught using performance feedback. Therefore, not only did performance feedback produce better outcomes, but it did so with much less direct instruction time.

### Limitations

Despite demonstrating an experimental effect, there are some limitations. First, due to various technology difficulties, one paraeducator only had two data points during baseline. The PI felt that since baseline data are not required in an AATD, it was in the best interest of the participant, and the study, to move her into the intervention phase. This allowed her to participate in the didactic instruction training session with her peers, mimicking a typical in-service session. Giving Carol's one-on-one didactic sessions would have also made it difficult to compare her results to others. Second, OTRs were coded as questions only. Questions are one form of an OTR within an umbrella of varying types of OTR. Therefore, some opportunities for students to respond may not have been represented within the data. Third, and finally, being that the aim of this study was to evaluate specific training approaches and the effect these approaches have on the paraeducators' use of behavior management strategies, student data were not collected.

### Implications for Practice

The results of this study suggest that when training paraeducators, performance feedback may produce better immediate and sustained effects than didactic instruction alone. With time being controlled throughout the study, it may also be important for school leaders to consider how professional development time is best planned for and executed. It may be beneficial for school leaders to consider how to incorporate opportunities for performance feedback for paraeducators. Finally, the data from this study demonstrated no sustained change in behavior over time under the didactic instruction condition, leaving the overall value of this type of training questionable.

### Future Directions for Research

Although performance feedback appears to be the superior training approach, evaluating the feasibility and sustainability of a performance feedback training program for paraeducators should be a future avenue for research. Examining the process for transitioning a performance feedback training program from research-supported to self-supported would allow schools to rely less on university-supported training. A second area for additional research is to determine if

performance feedback can be delivered less frequently while maintaining the same level of efficiency. Although this study implemented nine performance feedback sessions, several paraeducators responded to the feedback prior to the ninth session, suggesting less sessions may produce similar results. Becoming self-supported and determining the minimal number of feedback sessions needed becomes of importance due to budget restrictions, overwhelmed schedules, and the limited number of personnel schools face. Third, in this study, classroom teachers were only minimally involved. Examining of delivery of performance feedback to paraeducator and teacher dyads may serve to improve their skill sets within the classroom, enhance their working relationship that Jones, Ratcliff, Sheehan, and Hunt (2012) allude to in their research, and improve the lack of appreciation that many paraeducators feel (Sobeck & Robertson, 2019). Finally, replication of this study would also serve to strengthen the positive effects demonstrated. Examining the same procedures with paraeducators who work in diverse environments (e.g., urban and suburban), as well as paraeducators who support students in varying grade levels (e.g., preschool and high school) would support the generalization of the findings.

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