A COMPARISON OF WRITTEN AND VERBAL FEEDBACK ON THE IMPLEMENTATION OF BEHAVIOR-SPECIFIC PRAISE

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ABSTRACT

This study examined the comparative effects of written and verbal performance feedback on behavior technicians' implementation of behavior-specific praise (BSP) during behavior analytic treatment sessions. Given the established effectiveness of feedback in improving staff performance, this study sought to determine whether the mode of feedback delivery (written or verbal interaction) influenced the frequency of BSP use. An A-B-A-C reversal design was employed to assess the effectiveness of these feedback modalities. Results indicated that verbal feedback was the most effective in increasing BSP use, while written feedback demonstrated moderate effectiveness. Future research should address the limitations of this study by increasing the sample size, examining the quality and characteristics of feedback, and exploring different feedback delivery methods.

Keywords: behavior-specific praise, performance feedback, written feedback, verbal feedback, behavior technician

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INTRODUCTION

Challenging behaviors among students are commonly observed in classroom settings and frequently cause significant concern for educators, resulting in heightened stress levels (Alter et al., 2013). Moreover, challenging behavior increases the likelihood that students will experience exclusionary discipline (Miller et al., 2017), disrupts instructional time for teachers (Walker et al., 2003), and negatively impact students' academic outcomes (Ducharme & Shecter, 2011). Specifically, the presence of challenging behaviors can have detrimental effects on children with autism including fewer positive social interactions, barriers to inclusion and learning, and exclusion from high-quality educational environments (Matson et al., 2013). These challenges can also impact their parents, leading to increased stress (Ranjbar et al., 2025). Managing these behaviors demands an effective behavior management strategy that prioritizes positive student behavior and academic engagement. However, not all teachers feel they possess the necessary behavior management skills to effectively promote engagement (Sanir et al., 2022). Among these approaches, behavior-specific praise (BSP) has emerged as one strategy to help equip teachers with the resources they need to promote a positive learning environment and diminish problem behavior in students (Fullerton et al., 2009).

Behavior Specific Praise

Behavior-specific praise (BSP) has emerged as a critical component of positive behavior management strategies used in school settings (Markelz et al., 2016). Research demonstrates that BSP may improve appropriately engaged behavior (AEB) (O'Handley et al., 2022), reduce disruptive behavior (DB) (O'Handley et al., 2022), and increase academic engagement (Gorton et al., 2021; Niwayama et al., 2020). A study by O'Handley et al. (2022) demonstrated that BSP delivered once every 2 minutes, compared to a 4-minute interval, yielded substantial and

immediate improvements in appropriately engaged behavior (AEB) and reduction in disruptive behavior (DB) in secondary classrooms. Similarly, a study conducted by Miller et al. (2023) found that after the implementation of a comprehensive training program, teachers effectively elevated their rates of BSP administered to targeted students to a specified six instances per hour. Thus, all students involved exhibited statistically significant improvements in their behavioral outcomes.

Furthermore, along with decreasing challenging behaviors, behavior-specific praise (BSP) stands out as a potent tool for increasing academic engagement. For example, a study by Niwayama et al. (2020) increased teachers' utilization of BSP by combining self-monitoring and peer feedback. In the study, children's academic engagement significantly improved across both classes following the intervention, indicating the positive impact of increased BSP on academic outcomes (Niwayama et al., 2020). Sutherland et al. (2000) investigated the impact of teacher behavior specific praise on the on-task behaviors of nine elementary-aged students diagnosed with emotional/behavioral disorders (EBD) within a self-contained classroom setting. Specifically, the researchers instructed the classroom teacher to employ behavior-specific praise statements during teacher-directed activities, such as social skills training. Following the training, it was observed that the frequency of praise from the teacher increased, leading to an improvement in the students' on-task behavior.

Despite evidence supporting the effectiveness of behavior specific praise, its implementation remains inconsistent in early childhood classrooms (Floress et al., 2017). A review by Jenkins, Floress, and Reinke (2015) highlighted that students with disabilities receive significantly fewer approval statements, with BSP rates ranging from 0.42 to 13.5 times per hour. This underutilization may be due to a lack of adequate training for educators in behavioral

strategies, leading to challenges in implementing these interventions effectively (Snell et al., 2012). A potential solution is incorporating performance feedback through consultation to enhance educators' ability to use strategies like behavior specific praise with greater consistency (Spurlock et al., 2024).

Performance Feedback

One widely used method for improving staff implementation of evidence-based practices is performance feedback which involves observing a targeted behavior and offering the individual explicit feedback on how to enhance the quality of their intervention implementation based on their performance (Noelle et al. 2005). When examining performance feedback, Fallon et al. (2015) conducted a meta-analysis and identified performance feedback as an evidence-based practice that effectively enhances the intervention fidelity of instructional personnel across diverse educational settings. In fact, the use of performance feedback has garnered significant attention in recent years as an effective approach to increase teachers' use of behavior specific praise (Hawkins & Heflin, 2011; Hemmeter et al., 2011; Reinke et al., 2007). Notably, research has consistently demonstrated the effectiveness of performance feedback in improving teacher behavior, regardless of its delivery method. Performance feedback can be delivered through various methods, whether through video modeling with voiceovers (Shuler et al., 2019), weekly consultations (O'Handley et al., 2018), text message (Barton et al., 2019), visual representation (Reinke et al., 2007), email (Barton et al., 2013; Hemmeter et al., 2011), or technology (Coogle et al., 2021). It can also be provided daily before or after a session (Criss et al., 2024) and may be paired with goal-setting components (Criss et al., 2024) or prompting (Lastrapes et al., 2023) to further enhance its impact. However, less is known about the effectiveness of different modes of feedback on the implementer's use of behavior specific praise.

Written and Verbal Feedback

Although there is a substantial body of research on feedback, the investigation into written feedback is less extensive, though Gorton et al. (2022) examined this aspect. Using a concurrent multiple probe design across four teachers, Gorton et al. (2022) evaluated the effectiveness of a brief training and email-specific performance feedback (ESPF) in increasing behavior specific praise (BSP) among preschool teachers. The intervention led to a clear functional relation between ESPF and increased BSP frequency. Additionally, although child engagement was not the primary focus, data indicated improved task engagement following intervention, aligning with previous research on BSP's positive impact on student behavior (Jenkins et al., 2015). The study demonstrates the importance of both BSP quantity and quality and suggests that performance feedback can enhance teacher implementation of BSP which in turn may contribute to improved student engagement. However, Gorton et al. (2022) noted that participant attrition, the absence of baseline procedural fidelity data, structured social validity measures, and ambiguities in operational definitions of behavior-specific praise suggest further refinement in the methodology is warranted.

Furthermore, Hemmeter et al. (2010) investigated the effectiveness of training and email feedback on early childhood teachers' use of descriptive praise during large-group activities. Using a multiple probe single-subject experimental design, four full-time teachers working in Head Start and childcare programs participated in a 30-minute one-on-one training session followed by ongoing observations and structured email feedback. Feedback emails included supportive and corrective elements, an action plan, and video models to enhance implementation. Results demonstrated that training combined with email feedback effectively increased teachers' use of descriptive praise, highlighting its potential as a professional development tool in early

childhood education. The authors noted some limitations including the data collection system, which measured classroom-wide challenging behavior and engagement rather than individual child behavior, potentially skewing results based on student attendance patterns. Additionally, the measurement of challenging behavior may have included teacher responses, which could have influenced the accuracy of the data. Despite these limitations, the findings highlight the potential of performance feedback in improving teacher implementation of behavior-specific praise. Future research should explore different feedback delivery methods (electronic vs. in-person), assess long-term maintenance and generalization of skills, and refine measurement systems to better capture the effects of teacher interventions on both individual and group behaviors.

In their 2018 study, Luck et al. explored how written and verbal feedback affected the ability of special education teachers to conduct preference assessments. The researchers implemented a training program that began with a group lecture and was followed by one-on-one feedback sessions after each role-play. Both written and verbal feedback proved to be equally effective in enhancing the teachers' performance in conducting preference assessments. However, teachers showed a clear preference for verbal feedback. The authors suggested that further studies should investigate how these feedback methods might influence the teaching of other skills, and whether the improvements made during training are maintained and generalized over time.

Limitations and Future Research

In summary, behavior specific praise is widely recognized as an effective method for managing behavior (Miller et al., 2025). However, despite its proven effectiveness, the frequency at which practitioners implement BSP statements remains lower than expected. A growing body

of research has highlighted that performance feedback can be an impactful tool in improving training outcomes and encouraging the adoption of desired behaviors (Song et al., 2021). While this approach has been well-documented in various contexts, there is a lack of studies exploring its effectiveness outside of classroom contexts. Additionally, relatively few studies have examined the comparative effects of written and verbal feedback on practitioners' performance (Bauer et al., 2020).

Purpose of Study

The purpose of this study was to examine the differential effects of written and verbal feedback on behavior technicians' implementation of behavior specific praise in an applied clinical setting. This study seeks to address the following research questions: 1) What are the effects of written and verbal feedback on behavior technicians' use of behavior specific praise? 2) What method of feedback is preferred by behavior technicians?

METHOD

Setting

This study occurred at an early intensive autism clinic affiliated with a Midwestern University. All data collection sessions occurred in the clinic with the client and the behavior technician. The verbal feedback sessions were conducted face-to-face in a small, dedicated office space located outside of the treatment room. This office space was designed to facilitate one-on-one interactions with a setup that included a desk and two office chairs. All data collection for both participants occurred during scheduled recess time for the students in the early afternoon of each day. Recess occurred in one of two settings: the outdoor playground or the indoor gym located within the building. The playground was a fenced-in area equipped with various play structures including but not limited to slides, bikes, and climbing frames. When recess was held indoors, sessions took place in the gym which was stocked with a variety of toys and equipment such as balls, balance beams, and ride-on cars. Indoor recess consisted of a mix of free play and structured activities led by staff such as group games like Duck Duck Goose or Musical Chairs.

Inclusion and Exclusion Criteria

The inclusion criteria for BT participation consisted of: 1) employed at an early intensive autism clinic and provides direct services to children; and 2) displayed low rates of behavior specific praise defined as fewer than three occurrences in a 10-minute observation period for three consecutive days. Exclusion criteria for behavior technician participants included: 1) behavior technicians who demonstrate high rates of BSP as defined as more than 3 occurrences in a 10-minute observation period for 3 consecutive days; and 2) BTs who serve clients with significant needs or challenges, such as self-injurious behavior (SIB) or for whom BSP may not be a meaningful strategy.

Recruitment

Two behavior technicians who worked at an early intensive autism clinic in a Midwestern city were recruited to participate. Participants were identified by their supervising Board Certified Behavior Analyst and demonstrated interest in participation. Both participants provided behavior analytic services to children with autism spectrum disorder (ASD) between the ages 2-5 years old for 32 ½ hours five days a week. Institutional Review Board (IRB) approval was provided for the study through the early intensive autism clinic. Participants signed consent to participate in research as part of their onboarding and training procedures.

Participants

Callie was a 24-year-old White, non-Hispanic female who had five months of experience at the autism clinic at the start of data collection. She was pursuing a master's degree in Applied Behavior Analysis and had two years of experience working with children diagnosed with autism spectrum disorder across all different ages from young children to adults.

Lucy was a 22-year-old White, non-Hispanic female who worked at the autism clinic for a period of one month prior to the start of data collection. She was pursuing a bachelor's degree in criminal justice. Prior to the current autism clinic, Lucy did not have any experience working with children diagnosed with autism spectrum disorder.

Interventionist

The interventionist for this study was a graduate student in special education at a Midwestern University. As a behavior technician, she implemented direct services for one year to clients. As an assistant behavior analyst, she worked alongside her supervising Board Certified Behavior Analyst to provide feedback on clinical performance to team members, train new hires and existing team members on a variety of skills, and assisted in overseeing treatment programs

for clients. Throughout her graduate program, she also conducted data collection for other research studies implementing behavior specific praise. Interobserver agreement (IOA), and treatment fidelity were conducted by another graduate student in special education who also served as a behavior technician and an assistant behavior analyst in the same setting.

Materials

Several materials were used to facilitate data collection and intervention implementation throughout the study. A data sheet was utilized to record the frequency of behavior-specific praise (delivered by each behavior technician during sessions. The implementer also utilized a feedback form when delivering verbal feedback which consisted of all the necessary components of the performance feedback. An iPhone timer was used to ensure consistency in session timing and helped determine each interval of the observation period, ensuring that data collection was accurate for recording frequency of behavior specific praise at designated intervals. An iPhone™ was also used to send verbal performance feedback via text message to participants. Additionally, pens were used for manual data recording on the data sheets.

Measurement

Data Collection

All data collection occurred "live." Prior to data collection, data collectors were trained to collect data on the participant's use of behavior specific praise statements. The participant's behavior-specific praise statements were documented using event recording, employing 1-minute intervals over a 10-minute session. Each occurrence of a BT's behavior specific praise statement to the student for appropriate and desired behaviors were marked with a plus sign (+) in the interval they occurred. Intervals without behavior-specific praise were left blank.

Dependent Variable

The dependent variable measured in this study was the frequency of behavior-specific praise statements (BSP) over a 10-minute session. BSP was defined as the delivery of specific, positive feedback that explicitly identifies and reinforces desired behaviors exhibited by the participants to increase the chance they will continue to occur in the future (Perez et al., 2023). For example, BSP may sound like, "I loved that you shared your toy with your friend," or "Great job walking in the hallway." General praise can be defined as simply saying "good job" or "thank you" which would be considered non occurrences of behavior specific praise.

Independent Variable

The independent variable was performance feedback defined as observing a targeted behavior and offering the individual constructive input based on their performance (Noelle et al. 2005).The intervention procedures incorporated two methods of feedback: 1) written; and 2) verbal. The written feedback phase involved sending a feedback form via text message which 15 minutes before the BT's next session. The BTs read the feedback message independently and was asked to either "like" the message or send a confirmation text to indicate receipt of the message. This form included a clear definition of behavior specific praise, at least two correct examples from BT's most recent session, and two non-example or missed opportunities from that same session where BSP could have been used.

The verbal feedback condition involved the experimenter providing feedback directly face-to-face to the BTs 15 minutes before the next observation period using a feedback form to ensure that each component was included. The structured feedback form was used to standardize the verbal feedback and served as a guide for the experimenter when delivering feedback to the

behavior technicians. The verbal feedback consisted of the same components as the written feedback.

Research Design

This study utilized an A-B-A-C reversal design to compare the effects of written and verbal feedback on behavior technicians' implementation of behavior specific praise. The design allowed for a comparative analysis of both feedback modalities within the same participants while the reversal phase helped assess the functional relationship between the feedback interventions and changes in BSP implementation. The study began with a baseline phase in which no feedback was provided, allowing for an initial measurement of each BT's natural BSP use. The researcher collected a minimum of five data points for each participant until the rate of BSP was stable or steadily decreasing. Participants returned to the reversal phase after data demonstrated a stable trend for three consecutive sessions.

Procedures

Baseline (A)

Participants may have received informal feedback related to behavior specific praise prior to beginning the study through staff training and supervision sessions within the clinic. During the baseline phase, no feedback related to behavior specific praise was provided to participants. Instead, they continued their typical clinical routines without additional guidance or prompts regarding BSP use. Once the scheduled recess time occurred, the data collector started the timer for 10 minutes. Throughout the 10-minute session, data collectors recorded each occurrence of a behavior-specific praise statement on the data sheet without interacting with or providing any feedback to the BT. Once the timer reached 10 minutes, the implementer ended the session. Data collectors recorded the time and frequency count at the end of each session.

Intervention (B)

About fifteen minutes prior to the observation period, a text message containing feedback was sent to the participant's phone number. The content of the message included the frequency of behavior specific praise statements used in the previous session, a definition of behavior-specific praise, two appropriate examples given during the previous session, and two situations in which behavior specific praise could have been used but were not. Both participants wore smartwatches that notified them when a text message from the researcher was sent. As soon as the researcher sent the text message 15 minutes before the observation period, the smartwatch would alert them to the incoming message. Upon receiving the message, the participant was able to leave the treatment room to read the feedback. This method ensured that both participants received the notification in a timely and consistent manner, allowing them to step away from the session and read the feedback without distractions. After reading the feedback, the participant was required to either "like" or provide a brief response to confirm that they had read the message. After acknowledging the feedback, the behavior technicians put their devices away and returned to their clients in the treatment room.

Intervention (C)

Fifteen minutes before the next observation session, the researcher would approach the behavior technician and request to pull them aside for a brief meeting. The researcher and participant would then leave the treatment room and walk to a designated office for the feedback discussion. Upon entering the office, the researcher would begin the session by expressing appreciation for the BT's time and willingness to meet. The researcher would then proceed to deliver the feedback, covering the same components as in the written phase, such as the frequency of behavior-specific praise provided in the previous session, examples of correct BSP

usage, and missed opportunities where behavior specific praise could have been provided. This feedback was delivered verbally in a clear and concise manner. At the end of the feedback session, the researcher would ask the behavior technician if they had any questions or needed further clarification on any points discussed. Once the conversation was concluded, the behavior technician would leave the office and return to the treatment room to continue working with their client.

Procedural Fidelity

A six-item structured checklist was used to evaluate whether each essential component of the written feedback was included including the accuracy in delivering feedback within 15 minutes before the next session, greeting the behavior technician, defining behavior-specific praise, providing two correct examples from the technician's previous session, and identifying two missed opportunities or non-examples. A seven-item structured checklist was used to evaluate if each component of the verbal feedback which consisted of pulling the behavior technician out of the treatment room to the office space within 15 minutes before the next session, greeting the behavior technician, defining behavior-specific praise, providing two correct examples from the technician's previous session, identifying two missed opportunities or non-examples, and thanking them for their time and sending them back to the treatment room. The researcher recorded whether these steps were completed accurately using a "Yes" and "No" coding system. To verify delivery and receipt, observers tracked the timestamp of the message, checked that all required components were included, and documented whether the technician acknowledged the message by either "liking" it or replying with confirmation. Any deviations, such as missing components or late delivery, were noted. The researcher recorded whether each step was completed and documented the session's start and end time and the accuracy of the

feedback content. Procedural fidelity was calculated by dividing the number of correctly implemented steps by total number of steps and multiplied by 100.

For participant 1, procedural fidelity was collected on 40% of the first baseline session, 33% of intervention B, 40% of the second baseline session, and 33% of intervention B. The mean fidelity score across sessions during baseline was 100%. The mean fidelity data for all intervention sessions was 100%. For participant 2, procedural fidelity was collected on 40% of the first baseline session, 43% of intervention B, 40% of the second baseline session, and 43% of intervention C. The mean fidelity score across sessions during baseline was 100%. The mean fidelity data for all intervention sessions was 100%.

Interobserver Agreement (IOA)

Interobserver agreement (IOA) was calculated by comparing the primary observer's data with the second observer's data using the exact count per interval across all sessions. During reliability sessions, two researchers would observe the session and record the occurrence and nonoccurrence of behavior specific praise indicated on the data collection sheet. Agreements were defined as each interval in which both observers recorded the same response of "+" and/or "-". Disagreements were defined as having one observer recording a behavior occurring in a particular interval when the other did not and vice versa. IOA was calculated by dividing the total number of agreements by the total number of intervals.

Social Validity

To assess the social validity of the intervention, a 12-item questionnaire was administered to behavior technicians at the conclusion of the study. The questionnaire was designed to evaluate the usability, feasibility, and acceptability of written and verbal performance feedback (Wolf, 1978). Items were categorized into three domains: (1) Acceptability of Intervention

Goals, (2) Acceptability of Procedures, and (3) Acceptability of Outcomes. Acceptability of Intervention Goals assessed the perceived importance of receiving feedback and the effectiveness of behavior-specific praise in improving client performance. Acceptability of Procedures assessed BTs' preferences regarding written versus verbal feedback and their perceived effectiveness in increasing BSP implementation. Finally, Acceptability of Outcomes, assessed whether BTs believed that increasing BSP improved client outcomes and whether they planned to continue using BSP in future sessions. Participants rated each item on a 4-point Likert scale, ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). To maintain confidentiality, the questionnaires were distributed in sealed envelopes and returned anonymously.

RESULTS

Callie

During the initial baseline phase, the level of BSP implementation was low, beginning at zero and remaining relatively low with a slight increase on the second and third sessions. Of note, minimal variability was observed at baseline. Following the written feedback phase, an abrupt change in level is evident, indicating an increase in BSP implementation. In addition, there is a steady upward trajectory in trend with moderate variability. Notably, data levels are higher when compared to the initial baseline phase. Upon withdrawal of the intervention, an abrupt change in level is also observed, with a decrease in trend. Following the introduction of verbal feedback, the level of BSP implementation surpassed levels observed in the written feedback phase with a stark increase in trend despite moderate variability in the data. Following the final baseline phase, the frequency of BSP returned to lower levels of frequency when compared to the previous condition. Despite some elements of a sequence effect, there is some evidence of experimental control. Compared to written feedback, verbal feedback resulted in higher and more stable rates of BSP. Variability was moderate but demonstrated consistency, suggesting verbal feedback was a more effective intervention in increasing BSP implementation. Overall, Callie's data demonstrates a basic effect for use of performance feedback to facilitate the use of behavior specific praise, including three repetitions of an effect. Therefore, a functional relation between performance feedback and BSP implementation has been established.

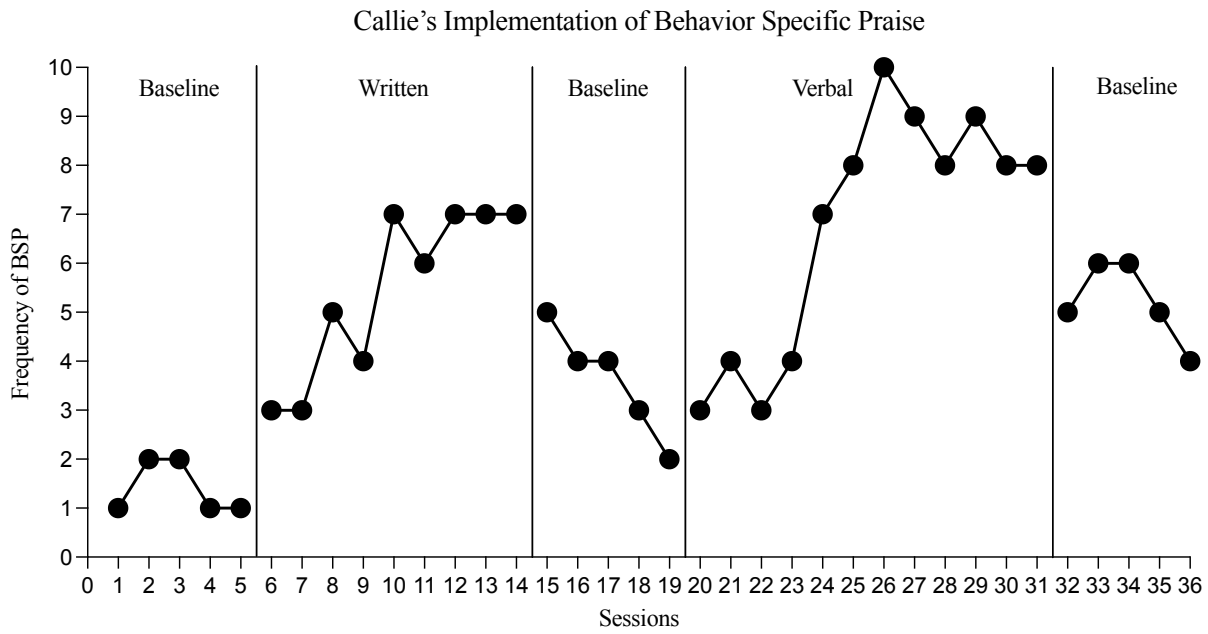

Figure 1: Implementation of BSP after Written and Verbal Feedback for Callie

Lucy

During the initial baseline phase, the level of behavior-specific praise was low and variable with occurrences ranging from 0 to 2 per session. A slight increase in trend is noted for the first three sessions of baseline. Following the introduction of the written feedback condition, the level of BSP increased reaching up to 5 occurrences in some sessions. Thus, an abrupt change in level and an increase in trend was observed, particularly during the last four sessions. When intervention was withdrawn, the level of BSP initially remained at similar levels as in the previous condition (noted by overlap in the data) indicating a potential sequence effect. However, there was a decrease in the last session, suggesting a reduction in BSP occurrences when feedback was removed. With the introduction of the verbal feedback phase, an abrupt change in level is observed once again reaching the highest levels observed across all phases. Of note, the trend steadily increased, with occurrences consistently above previous baseline levels. Variability was moderate as performance became more stable, peaking at around 6 occurrences

per session. While Lucy's data is not as robust in comparison to Callie's outcomes, there is a noticeable difference in use of behavior specific praise in the written condition, as well as the verbal condition. Overall, her data demonstrates a basic effect for use of performance feedback to increase use of behavior specific praise, including three repetitions of an effect. Therefore, a functional relation has been established.

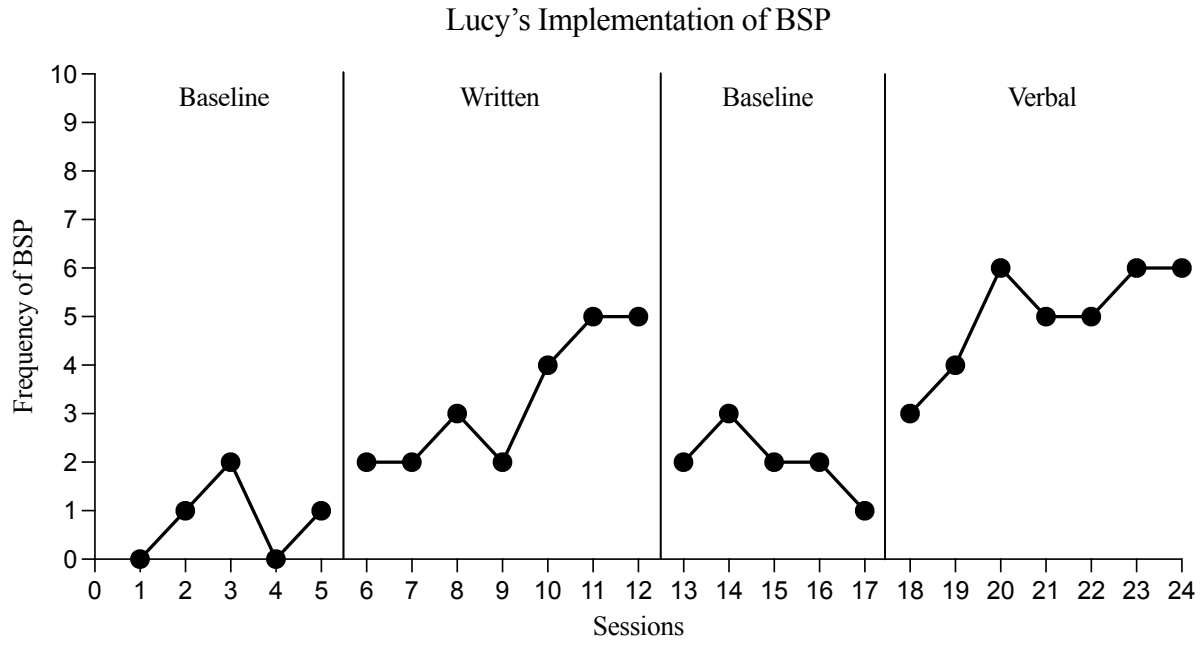

Figure 2: Implementation of BSP after Written and Verbal Feedback for Lucy

Interobserver Agreement (IOA)

Interobserver agreement was collected for a minimal of 33% across all participants and phases. The average agreement for the first participant across each phase was 95% for baseline (range= 90-100), 85% for intervention B (range= 70-100%), 95% for the second baseline phase (range= 90-100%), 87.5% for intervention C (range= 80-100%), and 90% for the final baseline phase**.**

The average agreement for the second participant across each phase was 95% for baseline

(range= 90-100%), 90% for intervention B (range= 80-100%) , 100% for the second baseline phase, and 90% for intervention C (range=80-100%).

Social Validity

The social validity results suggest that participants recognized the importance of receiving feedback on behavior-specific praise to enhance their implementation practices and improve client outcomes. Across multiple items, both participants consistently agreed that feedback played a crucial role in refining their skills and that specific positive praise was an effective strategy for improving client performance. The results also indicate a preference for verbal feedback over written feedback, for participants found it more effective in increasing their performance. However, written feedback was still considered beneficial to some extent. Additionally, participants reported that the feedback they received on how to deliver BSP was useful and that they would recommend the use of feedback-based interventions to others working in similar roles. Before participating in the study, some individuals indicated that they did not regularly use BSP in their sessions. However, after receiving feedback, they acknowledged its positive impact on client outcomes. As a result, both participants expressed an intention to continue increasing their rate of BSP in future sessions. Overall, these findings highlight the acceptability and perceived effectiveness of feedback in promoting the use of BSP among behavior technicians.

DISCUSSION

The purpose of this study was to examine the comparative effects of written (i.e., text message) and verbal (i.e., face to face) feedback on behavior technicians' implementation of behavior-specific praise. Given the strong literature base that demonstrates the effectiveness of feedback in shaping staff performance, this study aimed to determine whether the mode of feedback delivery increased the frequency of use of behavior specific praise for behavior technicians. Overall, results indicate that verbal feedback provided the strongest evidence of effectiveness in increasing behavior technicians' use of behavior specific praise with some moderate evidence of effectiveness for written feedback. These outcomes will be discussed within the context of the existing literature.

There is evidence to suggest that performance feedback is an effective intervention for creating behavior change in adults who implement evidence-based practices for children with disabilities (Johnson et al., 2023). Several recent studies have demonstrated the effectiveness of different modalities of performance feedback in improving the implementation of evidence-based practices by educators and staff working with individuals with disabilities. For example, Ampuero et al. (2021) found that brief performance feedback interventions with skill rehearsal increased paraeducators' fidelity in mand training with improvements maintained over follow-up sessions. Similarly, Madzharova et al. (2018) showed that in-vivo modeling and feedback alone were sufficient to train school staff to implement a multi-step behavior intervention plan accurately within a short timeframe. Robinson et al. (2011) further supported these findings, demonstrating that a training package incorporating modeling and video-based feedback improved paraprofessionals' implementation of Pivotal Response Treatment (PRT) and enhanced student outcomes. Collectively, these studies highlight the effectiveness of various

performance feedback modalities in increasing treatment fidelity among implementers and reinforcing the importance of ongoing feedback in improving behavior change. Our results are consistent with the existing literature as they demonstrate that while there was some variation in the effectiveness of each type of feedback (written or verbal) on behavior technician's use of behavior specific praise, we observed modest effects of effectiveness for both the use of written and verbal feedback.

A second point of discussion is the need to individualize and intensify support for behavior technicians providing services to children with autism in clinical settings. Recent research has shown that early childhood teachers could benefit from more individualized and intensive training that includes coaching (Artman-Meeker et al., 2023). Similarly, studies have shown that behavior technicians could also benefit from individualized interventions to improve their implementation practices (Kulaga et al., 2017). The differential effects of written and verbal feedback on behavior technicians' skills could be related to their professional and educational experiences. For example, in this present study, Callie had more months of experience working in the clinic where data collection occurred, was pursuing a graduate degree in a related field, and had more years of experience working with children with autism. On the other hand, Lucy, had less experience working in the clinic where data collection occurred, had a undergraduate degree in an unrelated field, and did not have any experience working with children with autism prior to the start of data collection. While their data show some similarities in level, trend, and variability, Callie implemented BSP with greater frequency than Lucy. Consistent with the existing literature, we show that the use of written and verbal feedback has differential effects on adult behavior and these effects may vary based on implementer characteristics. Thus, these

results shed light on the need to tailor and intensify intervention practices (i.e., training, coaching, etc.) to the specific needs and abilities of behavior technicians.

While it is important to assess the comparative effects of the dosage of feedback on skill acquisition, it is also important to assess the quality of feedback provided. While the quality of feedback was not directly assessed in this present study, research has shown that written feedback can be less effective than feedback that is provided face to face (Kaufman et al., 2013). These outcomes are in alignment with our findings. For some, written feedback may feel impersonal, does not provide an opportunity to ask follow up questions, and lacks positive qualities such as tone, affect, eye contact that are influential in facilitating change in adult behavior (Easton & Erchul, 2011). Furthermore, unlike verbal interactions, which require immediate attention and engagement, written feedback can be easily overlooked or deprioritized, leading to reduced impact on behavior change. This can be described as "out of sight, out of mind," and it may have contributed to the more moderate effects observed in the written feedback condition. Given the nature of text messages, participants may quickly skim through the feedback, mentally note key points, and then become preoccupied with other notifications that pop up on their phones. This could reduce the likelihood of fully processing the content, internalizing the examples provided, or thinking about how to apply the feedback in future sessions. In contrast, verbal feedback was delivered in a semi-private setting where the technician's full attention was on the conversation.

As a final point of discussion, the most significant outcome is that this study demonstrated that behavior-specific praise is a reversible behavior rather than an acquired skill. Across both participants, BSP levels consistently decreased during the withdrawal phases, returning to or near baseline levels when feedback was removed. This pattern was observed across multiple withdrawal conditions, demonstrating that without ongoing feedback, the use of

BSP was not maintained. These results suggest that without sustained performance feedback, behavior technicians may not continue using BSP at high levels. This highlights the need for ongoing coaching support, as opposed to brief training or feedback sessions, for long-term adoption of a newly learned skill. Observational notes indicated that during withdrawal phases, behavior technicians disengaged from children during recess which may have contributed to the less frequent use of behavior specific praise. In addition, their proximity to children also changed as they spent less time in close interactions with children. This shift may have contributed to the decline in uptake of behavior specific praise suggesting that feedback not only influenced praise but may have also encouraged more active engagement overall. These outcomes emphasize the importance of incorporating continued feedback to ensure that behavior specific praise remains a consistent part of behavior technicians' practice.

Limitations and Future Research

While this study provides insight into the effectiveness of written and verbal feedback on behavior technicians' implementation of behavior-specific praise, several limitations should be considered. First, this study consisted of a small sample size with only two BTs participating due to time restraints. A larger sample would be necessary to increase the generalizability of the findings and assess whether the effects observed are consistent across a more diverse group of BTs. Additionally, this study did not collect data on child behavior, limiting the ability to determine whether changes in behavior technicians' use of behavior-specific praise had a direct impact on client outcomes. If child behavior was influenced by increased behavior specific praise such as an increase in appropriate responding or engagement, this could have served as a natural reinforcer for the behavior technicians, further increasing their use of behavior specific praise independently of the feedback intervention. Future research should consider incorporating

measures of child behavior to better understand the functional relationship between BSP implementation and client outcomes as well as its potential role in maintaining behavior technicians' behavior. Furthermore, potential observer bias may have influenced the data collection process. Since data were collected through direct observations, the presence of the researcher in the room could have led to performance bias in which BTs altered their behavior due to being aware they were being observed. The behavior technicians' awareness that they were being observed could have led them to alter their natural behavior, potentially increasing their use of BSP regardless of the feedback provided, so the possibility of reactivity remains a limitation. Finally, another key methodological limitation of this study is the lack of counterbalancing in the delivery of written and verbal feedback. Since all participants received the feedback conditions in the same order, sequencing effects may have influenced the effectiveness of verbal feedback. That is, one could argue that it is difficult to determine whether differences in the effectiveness of written versus verbal feedback were due to the feedback modality itself or the cumulative exposure to feedback.

Future research should also consider a more rigorous research design, such as a multiple-baseline design across participants, to establish stronger and more robust causal relationships between feedback modalities and changes in BTs' behavior. Additionally, incorporating multiple data collectors, both for observation and for delivering feedback, could reduce observer reactivity and potential biases in data collection. Finally, future studies could also examine the quality of feedback provided and its impact on behavior technician performance. This could involve assessing the specificity, clarity, and level of detail in feedback messages as well as the inclusion of actionable steps. Investigating whether certain characteristics of feedback such as the balance between positive versus corrective statements, individualized versus standardized

content, or immediate versus delayed delivery and their effects on behavior technicians' responsiveness and skill acquisition would provide valuable insights. Research on reinforcement strategies as an indicator of quality, such as pairing feedback with tangible or social reinforcement, could provide valuable insights into how to enhance skill acquisition and maintenance of skill. Thus, more effective training and supervision practices can be enhanced in clinical settings by refining the quality of feedback delivery.

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APPENDIX A: BEHAVIOR SPECIFIC PRAISE DATA SHEET

Behavior Specific Praise Data Collection Form

Date: _____

Experimenter Initials: _____

Participant Initials: _____

Session Number: _____

Start time:
End time:

Minutes	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10
Occurrences of BSP (+)										

Frequency of Behavior-Specific Praise:

Notes:

Examples of Use of BSP	Missed Opportunities

APPENDIX B: FEEDBACK FORM

Feedback Form

BT:

Experimenter's Initials

Date of Session Observed:

Date of Feedback Provided:

Thank you for taking the time to meet with me today! We are going to discuss your frequency of behavior specific praise during your last session:

- In your last session, the frequency of behavior specific praise you provided was:

- Remember, behavior specific praise is a praise statement that acknowledges the specific behavior.

- Two examples of good behavior specific praise statements I observed during your last session:

  1.

  2.

- Two non-examples or missed opportunities I observed during your last session:

  1.

  2.

Thank you so much again for your time!

APPENDIX C: BASELINE PROCEDURAL FIDELITY

Procedural Fidelity- Baseline

Experimenter Initials:

Observer Initials:

Participant Initials:

Date:

Session #:

STEPS	OBSERVED	NOTES
1. Experimenter did not provide any feedback related to behavior specific praise throughout entire session.	YES NO NA	

Percentage = (Yes/Total) X 100 =

APPENDIX D: WRITTEN INTERVENTION PROCEDURAL FIDELITY

Procedural Fidelity- Written Intervention

Experimenter Initials:

Observer Initials:

Participant Initials:

Date:

Session #:

STEPS	OBSERVED	NOTES
1. Feedback form was time-stamped as "delivered" within 15 minutes before BT's session.	YES NO NA	
2. Feedback began with a greeting.	YES NO NA	
3. Feedback form consisted of the BT's behavior specific praise use from the previous session.	YES NO NA	
4. Feedback form included a written definition of behavior specific praise.	YES NO NA	
5. Feedback form included at least two examples of correct use of behavior specific praise from the BT's previous session.	YES NO NA	
6. Feedback form included at least two non-examples/missed opportunities from the BT's previous session.	YES NO NA	

Percentage: (yes/6) x 100 =

APPENDIX E: VERBAL INTERVENTION PROCEDURAL FIDELITY

Procedural Fidelity- Verbal Intervention

Experimenter Initials:
Observer Initials:
BT Initials:
Date:
Session #:

STEPS	OBSERVED	NOTES
1. Experimenter pulled BT out of treatment room into office space within 15 minutes before the observation session.	YES NO NA	
2. Experimenter greeted BT.	YES NO NA	
3. Experimenter provided BT with the frequency of BSP use from BT's previous session.	YES NO NA	
4. Experimenter stated the definition of behavior specific praise.	YES NO NA	
5. Experimenter included at least two examples of correct use of behavior specific praise from the BT's previous session.	YES NO NA	
6. Experimenter included at least two non-examples/missed opportunities from the BT's previous session.	YES NO NA	
7. Experimenter thanked BT for their time and sent BT back to treatment room.	YES NO NA	

Percentage: (yes/7) x 100 =

APPENDIX F: SOCIAL VALIDITY QUESTIONNAIRE

Part I: Acceptability of Intervention Goals

1. It is important for BTs to receive feedback to improve their sessions.

1 - 2 - 3 - 4

DISAGREE **AGREE**

2. Receiving feedback on my sessions will improve client outcomes.

1 - 2 - 3 - 4

DISAGREE **AGREE**

3. Specific positive praise is an effective way to improve client performance.

1 - 2 - 3 - 4

DISAGREE **AGREE**

Part II: Acceptability of Procedures

4. Receiving feedback on my rate of specific positive praise via written form was more effective than verbal feedback in increasing my performance.

1 - 2 - 3 - 4

DISAGREE **AGREE**

5. Receiving feedback on my rate of specific positive praise via verbal feedback was more effective than written form in increasing my performance.

1 - 2 - 3 - 4

DISAGREE **AGREE**

6. I preferred receiving feedback via written form instead of verbal feedback.

1 - 2 - 3 - 4

DISAGREE **AGREE**

7. I preferred receiving feedback via verbal feedback instead of written form.

1 - 2 - 3 - 4

DISAGREE **AGREE**

8. The feedback I received on how to deliver specific positive praise was effective.

1 - 2 - 3 - 4

DISAGREE **AGREE**

9. I would recommend the use of feedback for specific positive praise intervention for other RBTs.

1 - 2 - 3 - 4

DISAGREE **AGREE**

Part III: Acceptability of Outcomes

10. Before this study, I regularly used specific positive praise during my sessions.

1 - 2 - 3 - 4

DISAGREE **AGREE**

11. Overall, increasing my rate of specific positive praise improved client performance during my session.

1 - 2 - 3 - 4

DISAGREE **AGREE**

12. I will increase my rate of specific positive praise during my sessions as a result of this study.

1 - 2 - 3 - 4

DISAGREE **AGREE**