EFFECTIVENESS OF BEHAVIOR SPECIFIC PRAISE DURING ACADEMIC ACTIVITIES

By

Mallory Haynie

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Applied Behavior Analysis – Master of Arts

2024

ABSTRACT

In this study, researchers examined the effects of behavior specific praise in early childhood special education classrooms during academic activities. Child participants demonstrated challenging behaviors which inhibited their ability to attend during academic instruction. An AB case design was used to evaluate the effects of behavior specific praise on child behavior. Results show promise for use of behavior specific praise to increase on-task behavior and decrease challenging behaviors for one participant. Implications for future research include the need to further assess the extent to which behavior specific praise increases on-task behavior and decreases challenging behavior as well as additional variables such as schedule of delivery of behavior specific praise and matching child interest to activities.

Keywords: behavior specific praise, early childhood, early childhood special education, autism spectrum disorder, developmental delays

TABLE OF CONTENTS

LIST OF FIGURES

INTRODUCTION

Early childhood environments are the first educational settings children experience. One specialized preschool setting is Early Childhood Special Education (ECSE). The governing bodies for early childhood and special education have issued guidelines for designing high-quality early care environments. For example, the Council of Exceptional Children (CEC) issued seven professional standards for early interventionist and ECSE educators. These standards are child development and early learning, partnering with families, collaboration and teaming, assessment processes, application of curriculum frameworks in planning meaningful learning experiences, using responsive and reciprocal interactions, interventions, and instruction, and professionalism and ethical practice (Council for Exceptional Children, 2020). In addition, the National Association for Education of Young Children (NAEYC) emphasizes the importance of ECSE as a setting in which implementation of evidence-based interventions and services to children with developmental delays and disabilities (2022).

Early childhood teachers can be trained to implement evidence-based interventions within a tiered framework with varying levels of intensity (Artman-Meeker et al., 2013; Fox et al., 2003). One important framework for implementing said practices is Positive Behavior Support (PBS; Horner & Sugai, 2015). Within this framework applied behavior analytic principles can be used to decrease challenging behavior and increase young children's on-task engagement, communication skills, and prosocial behaviors. There are many intervention strategies that can be implemented within a tiered evidence-based framework to address these skills (Wong et al., 2015). One key strategy used within this approach is behavior specific praise. Behavior specific praise are verbal statements or gestures indicating approval of the exact behavior that elicits the praise (Covington-Smith et al., 2011; Floress et al., 2018). For example,

a classroom teacher may say to a child, “Great job sitting in your seat!” or “I love how you are coloring on the paper!” in response to behavior that meets classroom expectations. Behavior specific praise is often recommended for school settings due to requiring minimal effort and time to implement (Brophy 1981). In addition, behavior specific praise, rather than general praise, is highly recommended within the field of early childhood given its focus on responding to specific prosocial behaviors (O’Handley et al., 2023: Floress et al., 2018).

Behavior Specific Praise

Outcomes from several studies on the use of behavior specific praise in early childhood care environments have shown the effectiveness of this strategy for decreasing challenging behaviors and increasing prosocial behaviors. For example, Stormont and colleagues (2007) selected teachers and students from three Head Start centers. Children enrolled in Head Start programs have been reported to present one or more behaviors recognized as challenging as well as more physically aggressive behaviors. Teachers who delivered higher rates of reprimands than positive attention to students were selected for this study (Stormont et al., 2007). Teachers were given instruction as to how to implement praise during the academic activities and received feedback from researchers after each session. Researchers found that after the intervention, rates of student challenging behavior during academic activities reduced and the rates of teacher praise statements increased. They also found that being specific with praise supported the maintenance of appropriate student behaviors as well as skill acquisition in preschool age students.

When natural rates of praise are examined, it has been found that teachers across all grade levels, including preschool, tend to implement general praise more frequently than behavior specific praise (Floress et al., 2017). For example, researchers found that there was a statistically significant higher rate of general praise naturally provided compared to behavior specific praise

provided by preschool teachers (Floress et al., 2017). That is, the average natural rates of behavior specific praise across preschool classrooms were 14.4 per hour and average natural rates of general praise were 47.1 per hour. Special education preschool classrooms natural rates of behavior specific praise were higher than the average at 23.1 per hour. The lowest natural rates of behavior specific praise were found in general education preschool classrooms at 8.1 per hour.

Behavior specific praise is effective as it allows children to be more likely to identify the behaviors that elicit praise and increases the likelihood of those behaviors occurring in the future (Floress et al., 2017 & Floress et al., 2018). For example, researchers found that teachers used more than four times the amount of general praise statements than behavior specific praise statements per hour (Floress et al., 2018). Notably, researchers found an inverse relationship between behavior specific praise and off-task behavior. That is, as behavior specific praise increases, off-task behavior decreases. Floress and colleagues suggest to effectively decrease student challenging behaviors, behavior specific praise should be delivered 18 to 30 times per hour (2018). This requires the delivery of behavior specific praise on average every 2 to 3.3 minutes. In addition, across studies, researchers noted an immediate increase in prosocial behaviors (Covington Smith et al., 2011; O'Handley et al., 2023).

In addition, O'Handley, and colleagues (2023) examined the effects of providing behavior specific praise every once every 2-minutes compared to providing behavior specific praise once every 4-minutes in general education secondary classrooms. Researchers found that teachers providing behavior specific praise once every 2-minutes was more effective than providing behavior specific praise once every 4-minutes. Providing behavior specific praise every 2-minutes increased appropriate student behaviors and decreased student challenging

behaviors class wide. It also resulted in more immediate and stable improvements in student behaviors with minimal variability. It is also significant to mention that researchers reported there were no observed satiation effects in students with either schedule of behavior specific praise

Limitations and Future Research

Several reviews have been conducted on the effectiveness of praise for young children and school-age populations (Moore et al., 2019, Ennis et al., 2020). In sum, the literature on behavior specific praise is clear about its effectiveness for young children with and without disabilities. However, while this practice is highly recommended in the field of special education, in particular, the evidence-base for this approach is still questioned (Moore et al., 2019). Further, much of the literature covers the effectiveness of behavior specific praise for school age children, and less is known about the effectiveness of this approach with young children with disabilities and its effects during academic activities. Taken together, future research should explore the efficacy of behavior specific praise with young children with disabilities and its effectiveness to reduce their challenging behaviors and increase prosocial behaviors.

Purpose of Study

Prior research has primarily been studied in general education settings with school age populations (Ennis et al., 2020). While a recommended practice, the evidence-base for behavior specific praise for young children in early childhood special education classrooms is yet to be determined. Previous research has largely been explored in kindergarten through 12th grade, not preschool age (Moore et al., 2019). There are far fewer studies that examine the effects of behavior specific praise on child behaviors recognized as challenging in early childhood special

education classrooms. Hence, the purpose of the present study is to add to the literature base on the effectiveness of behavior specific praise for preschool children with disabilities in self-contained classrooms. The following research questions were asked: 1) To what extent does the implementation of behavior specific praise reduce challenging behaviors during academic instruction? 2) To what extent does the implementation of behavior specific praise increase on-task behavior during academic instruction?

METHOD

Setting

This study occurred in two elementary schools within the same public school district in an urban Midwestern city. The classrooms where participants were selected were early childhood special education (ECSE) classrooms. There were both full day and half day programs. The full day program occurred for seven hours a day Monday through Thursday, totaling to about 28 hours a week. The half day program occurred for three hours a day Monday through Thursday, totaling to about 12 hours a week. In these classrooms children typically range in age from 3 to 5 years old. These ECSE classrooms enroll a maximum of 12 students per classroom and are instructed by a lead teacher and an assistant teacher. In each classroom there were center activities (e.g., imaginative play and building blocks), academic activities (e.g., tracing, painting, coloring, sorting), and whole group instruction (e.g., calendar group and story time). Classrooms contained child-sized seating, desks, and a separate area to store child belongings (e.g., backpacks and coats). All preliminary observations occurred within the classroom during academic activities.

Inclusion and Exclusion Criteria

Inclusion criteria required child participants to be between the ages of 2 and 5 years, enrolled in early childhood special education, hold a medical or educational eligibility for special education services, demonstrate low to moderate rates (below 50%) of on-task behavior during academic activities ((as observed in preliminary observations), demonstrate moderate to high rates (above 50%) of challenging behavior during academic activities (as observed in preliminary observations), demonstrate the ability to sit in a seat for at least 10-minutes, and speak English as a first language. Participants were not selected for this study if they demonstrated any of the

following: elopements from learning areas, elopement from classroom, self-injurious behavior, non-English speaker, and inconsistent school attendance.

Recruitment

Participants were recruited from an ECSE within an urban public school district. The district contracted a local university to support students in ECSE classrooms through providing applied behavior analytic services. Following Institutional Review Board (IRB) approval, consent forms were sent home with students. After consent for students via their parent(s)/legal guardians(s) was acquired, participants were selected based on inclusion criteria described above.

Child Participants

Participants included three children: Rosie, Alfie, and Addie. The participants were enrolled in two separate ECSE classrooms across two schools. The participants were two female and one male. Their ages ranged from 3 to 4 years old. All child participants had an Individualized Education Plan (IEP) making them eligible for the placement and services in ESCE classrooms.

Rosie was a 4year-old African American female with an educational eligibility for special education services of Autism Spectrum Disorder. Rosie was enrolled in a full day ECSE classroom and received social work and speech services in the school setting as indicated by her IEP. Rosie's strengths included independent play and following classroom routines. Based on observations during the small group routine, Rosie's on-task behavior and engagement during academic activities was low and off-task behavior was high. For instance, Rosie would transition to the small group routine with minimal prompting but would sit in her seat not engaging with the activity. According to the descriptive data collected during the preliminary observation

period, Rosie's behaviors were primarily maintained through gaining access to attention and secondarily through escape. Rosie's challenging behaviors during academic instruction included looking around the room lasting for more than three seconds, orienting her face and body away from the table and activity, laying her head on her or adults lap, and inappropriately engaging with materials (e.g., rolling crayons on the table, rolling crayons between her hands and fingers, attempting to color on her body).

Alfie was a 4year-old African American and Caucasian male. He had an educational eligibility for special education services of Autism Spectrum Disorder. Alfie was enrolled in a half day ECSE classroom and received speech services in the school setting as indicated by his IEP. Alfie's strengths included gross motor skills and use of his augmentative alterative communication (AAC) device. Based on observations during the small group routine, Alfie engaged in the following challenging behaviors; climbing on to toy shelves, standing on top of chairs, noncompliance to the demands of the activity, and elopement from the learning area. According to descriptive data collected during the observational period, Alfie's behaviors were hypothesized to primarily be maintained through escape and secondarily through attention. Alfie's challenging behaviors demonstrated during sessions included elopements from the learning area, off-task behavior, orienting body away from activity, property destruction (e.g., tearing paper off crayons, tearing crayon box), and throwing materials off and away from the designated learning area.

Addie was a 3year-old Hispanic female with an educational eligibility for special education services of Autism Spectrum Disorder. Addie was enrolled in a half day ECSE classroom and received speech and occupational therapy services in the school setting as indicated by her IEP. Addie's strengths included playing with peers during free play, playing

independently during free play, and following classroom routines. Based on observations during the small group routine, Addie's on-task behavior and engagement during academic activities was low and off-task behavior was high. According to the descriptive data collected, Addie's behaviors were hypothesized to be maintained through the function of attention. Addie's challenging behaviors demonstrated during sessions included inappropriately engaging with materials (e.g., rolling crayons, tapping the table with crayons, and throwing materials on to the floor), property destruction (e.g., tearing paper off crayons and breaking crayons), off-task behavior (orienting body and face away from learning area).

Materials

The study was implemented outside the classroom environment. In a quiet space away from other children and adults. A child sized table with a child size chair was used for all child participants. The academic activities used throughout the study were coloring worksheets each focusing on a different letter of the alphabet. The students were also supplied with an eight-count box of jumbo crayons to color the worksheets. Because of their age, the jumbo crayons were deemed most appropriate given their current levels of fine motor skills. Researchers used a MotivAider, data collection sheets, clipboards, pens, and an iPhone timer.

Measurement

Dependent Variables

Two dependent variables were measured as part of this study: 1) on-task behavior; and 2) challenging behaviors. Operational definitions for each behavior are described below. Challenging behaviors were described as, "Any repeated pattern of behavior, or perception of behavior, that interferes with or is at risk of interfering optimal learning or engagement in prosocial interactions with peers and adults" (Powell et al., 2006 p. 26). These behaviors

included: 1) physical aggression defined as any attempt or occurrence of intentionally making contact with another person's body including hitting another person with open or closed hand, kicking, or biting; 2) property destruction defined as any occurrence of intentionally damaging materials by throwing an object at least one foot from its original location, breaking or tearing materials when not part of the activity; 3) vocal outbursts defined as vocalizations at a volume above normal conversational level for any period of time; 4) elopement defined as their bottom being more than six inches away from their designated chair without permission and any attempt to leave the designated learning area; 5) tantrum defined as any occurrence of lying on the floor when not part of the activity, crying (with or without tears), and screaming; 6) off-task engagement in any task other than the designated activity including playing with materials, looking around the room, or body being oriented away from designated activity or implementer when providing instructions; and 7) noncompliance defined as any occurrence of refusing to engage in an academic request by shaking head, saying "no", or pushing materials away from themselves.

On-task behaviors were defined as "compliance with the demands of the setting and activity" (Covington-Smith et al., 2011 p. 137). Participants were considered on-task if they: 1) were physically oriented to the implementer when providing instructions; 2) were physically oriented towards the task materials; and 3) were sitting in their designated chair at the designated table.

Data Collection

Prior to data collection, all data collectors were trained to collect data on on-task behavior and challenging behavior, and the implementer's use of behavior specific praise statements. Data collectors reached at least 90% reliability during training sessions.

Data was collected using a partial interval recording method with 10 second intervals throughout each 10-minute session in baseline and intervention. An occurrence was recorded in each interval where student challenging behavior was present was recorded as a minus (-) and each interval where student on-task behavior was present was recorded as a plus (+). If a student engaged in both challenging behavior and on-task behavior in the same interval both were recorded. A nonoccurrence of challenging behavior or on-task behavior was indicated by leaving an interval blank.

(See appendix A for participant data sheets)

During intervention, the implementer's behavior specific praise statements were recorded using partial interval recording with 10 second intervals throughout the 10-minute session. Any interval where behavior specific praise statements occurred were recorded as a plus (+). Data collected on the implementer was done on a datasheet separate from the student behavior datasheet. Any intervals where behavior specific praise was not present were left blank.

(See appendix B for implementer data sheets)

Independent Variables

The independent variable was behavior specific praise. Behavior Specific Praise is defined as statements from adults "indicating approval of student behavior that specifies the behavior that meets approval" (Covington-Smith et al., 2011p. 137). Statements such as "I love how you are coloring your picture!", "Thank you for waiting so patiently for the crayon!", and "I love how you are sitting in your seat with your feet on the floor!" would all be recorded as an occurrence. A nonoccurrence was recorded if statements given were similar to "good job" or "thank you", although they can be considered praise statements, they are not behavior specific. A

nonoccurrence was also recorded if gestures such as a thumbs up or high fives were given to the participant.

Research Design

An AB design was used in this study to examine the effects of behavior specific praise on student challenging behavior during academic activities. There were two conditions in this study: Baseline (A) and Intervention (B).

Preliminary Observation

To confirm prospective participants aligned with inclusion criteria, a minimum of three 10-minute observations during the small group setting were conducted by the primary researcher. These observations were conducted to identify challenging behaviors of each participant during academic activities. Antecedents and consequences of each instance of challenging behavior were recorded and used to identify the hypothesized function behavior. Data was discussed between the primary researcher and a secondary observer to confirm each participant's function of behavior.

Procedures

Baseline (A)

Prior to the session, the implementer asked for assent from the participant by asking if they wanted to come color. If the participant indicated "no", the implementer responded by saying "Okay, let's try again later". If the participant indicated "yes", then implementer directed the student to sit at the designated table where the activity and materials were set out. Once the implementer said, "Today we are going to…", the data collector started the timer for 10-minutes. Throughout the 10-minute session, data collectors recorded each interval where student challenging behavior and student on-task behavior were present throughout the duration of the

session. The implementer did not provide any praise, reprimands, nor correctives throughout the session. They engaged with the child by narrating the session, discussing the activities such as, asking them questions, making comments, and sharing their thoughts. For example, “What do you think this is a picture of?”, “I think this is a picture of a bear”. “Do you enjoy coloring?”, “I enjoy coloring too”. Once the timer reaches 10-minutes, the implementer ends the session by saying “We’re all done. Let’s go back to class and see what our friends are doing” and directed the child back to their classroom. Data collectors noted the time, and the implementer calculated the percentage of intervals of both on-task and challenging behaviors.

(See appendix C for procedural fidelity)

Intervention (B)

Prior to the session, the implementer asked for assent from the participant by asking if they wanted to come color. If the participant indicated “no”, the implementer responded by saying “Okay, let’s try again later”. If the participant indicated “yes”, then implementer directed the child to sit at the designated table where the activity and materials were set out. Once the implementer said, “Today we are going to…”, the data collector started the timer for 10-minutes and implementer started the MotivAider. Throughout the 10-minute session, data collectors recorded each interval where child challenging behavior, child on-task behavior, and behavior specific praise statements were present throughout the duration of the session. As indicated by the MotivAider , the implementer provides behavior specific praise statements once every 1-minute. Once the timer reaches 10-minutes, the implementer ends the session by saying “We’re all done. Let’s go back to class and see what our friends are doing” and directed the child back to their classroom. Data collectors noted the time and implementer calculated the percentage of intervals of both on-task and challenging behaviors.

(See appendix D for intervention procedural fidelity)

Procedural Fidelity

A procedural fidelity checklist was developed consisting of steps of the intervention that must have been implemented for each condition. To score procedural fidelity, each item on the checklist was worth one point. If the item was marked "Y" for yes, that step occurred or "N/A" nonapplicable, it was scored as one point. If the item was marked "N" for no it did not occur it was scored as zero. After procedural fidelity checklists were scored, procedural fidelity was calculated by dividing the number of correct steps by total number of steps multiplied by 100.

Fidelity data was collected on 40% of baseline sessions for Rosie. The mean fidelity score across sessions during baseline was 100%. The fidelity data was collected for 0% of intervention sessions. Fidelity data was collected on 33.3% of sessions for Alfie. The mean fidelity score across sessions during baseline was 100%. Fidelity data was collected on 33.3% of baseline sessions for Addie and 37.5% of intervention sessions. The mean fidelity score across sessions during baseline was 100%. The mean fidelity score across sessions during intervention was 100%.

Reliability

Interobserver agreement (IOA) was calculated by comparing the primary observer's data with the second observer's data for both baseline and intervention sessions. During reliability sessions, two researchers would observe the session and record the occurrence and nonoccurrence of the child and implementer's behaviors 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. Data collectors included two Board Certified Behavior Analysts in addition to a Master's level student researcher who was trained to collect partial interval recording.

RESULTS

Rosie

During baseline, Rosie engaged in on-task behavior between 63.33-96.66% of intervals with a general downwards trend as sessions continued. She engaged in challenging behavior 6.66-56.67% of intervals with a general increasing trend as sessions continued. One intervention session was completed, and the data point started at a slightly higher level than the last data point for baseline. Specifically, Rosie engaged in 67.5% of intervals on-task behavior and engaged in challenging behavior 60% of intervals. Due to unforeseen circumstances, the research team was removed from Rosie's classroom and the study was discontinued.

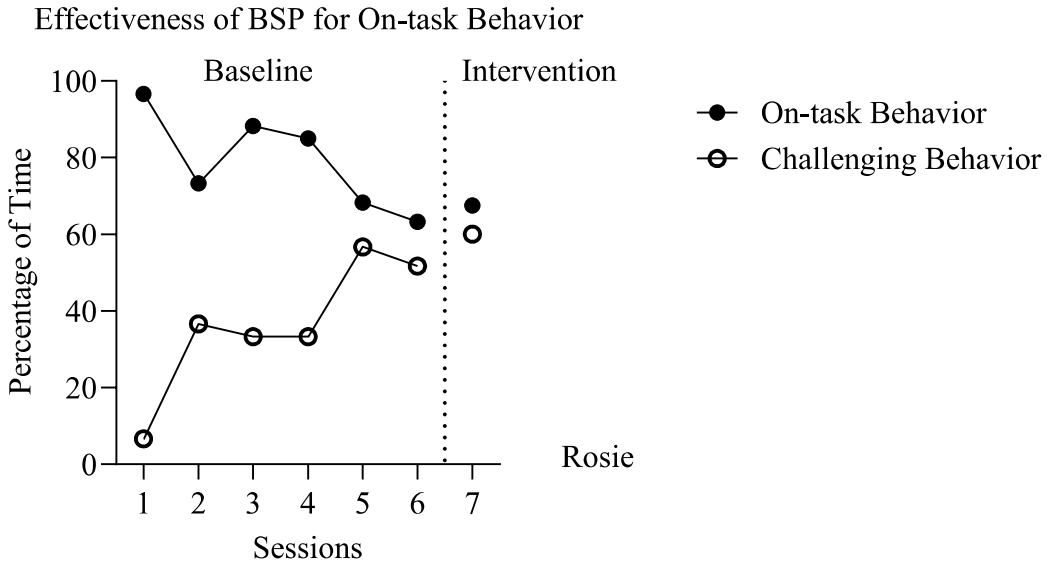

Figure 1: Effectiveness of BSP for On-task Behavior for Rosie

Alfie

During baseline, Alfie engaged in on-task behavior between 25-40% of intervals. He engaged in challenging behavior 65-83% of intervals. Due to the persistent and consistent elopements from the learning area throughout baseline and the inability to make it through the

entire 10-minute session; all sessions were terminated based on protocol developed for the study. Thus, the study was discontinued for Alfie.

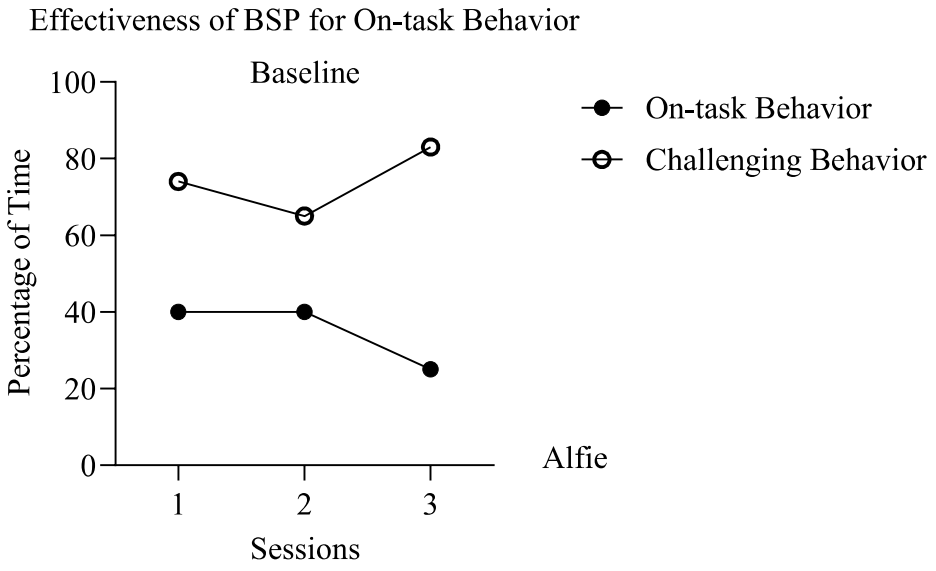

Figure 2: Effectiveness of BSP for On-task Behavior for Alfie

Addie

During baseline, Addie engaged in on-task behavior 21.6-35% of intervals and challenging behavior 71.6-83% of intervals. During intervention, Addie engaged in on-task behavior 23.3-91.7% of intervals and challenging behavior 15-86.7% of intervals. Of note, data were variable for both on-task behavior and challenging behaviors however her last three intervention sessions demonstrated an increasing trend of on-task behavior and decreasing trend of challenging behavior.

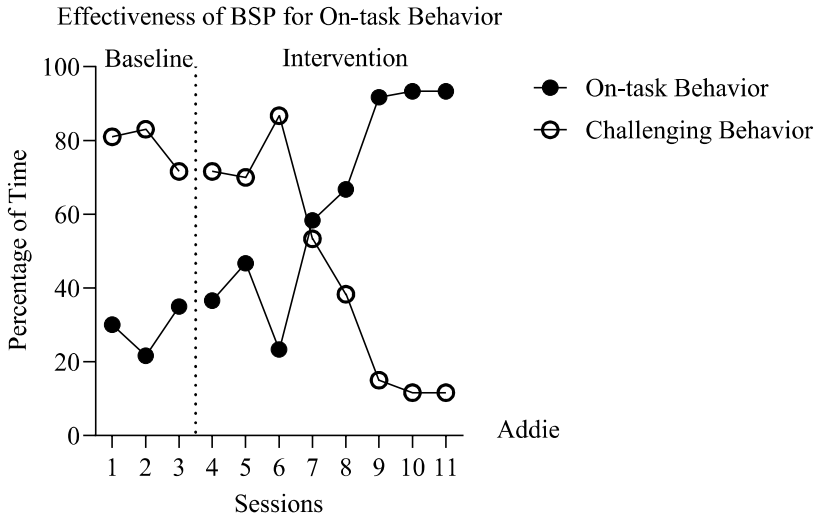

Figure 3: Effectiveness of BSP for On-task Behavior for Addie

Interobserver Agreement

The average agreement for participant behavior during Rosie's baseline was 85.8% (range=75-96.6%) with 40% of her baseline sessions having IOA data. No IOA was collected during Rosie's sole intervention session. No IOA was collected during Alfie's baseline. The average agreement for Addie's baseline was 61.6% with 33.3% of her baseline sessions having IOA data. The average agreement for participant behavior during Addie's intervention was 98.3% (range=96.7-100%). The average agreement for implementer behavior was 98.8% (range= 96.6-100%) with 37.5% of Addie's intervention sessions having IOA data.

DISCUSSION

The purpose of this study was to examine the effectiveness of behavior specific praise for young children with disabilities in an early childhood special education classroom. Specifically, this study examined the effects of increasing on-task behavior and reducing challenging behavior during academic activities. While results are inconclusive due to limited data, Addie's data shows the most promise. Thus, there are a few points worthy of discussion.

First, observed changes in Addie's behavior occurred over multiple sessions. Despite variability in Addie's on-task behavior and challenging behavior during intervention, there was an increasing trend of on-task behavior and a decreasing trend of challenging behavior during the last five sessions. Particularly, between sessions eight and nine there was a 25% increase in on-task behavior and 23.3% decrease in challenging behavior. However, there was a multiple session (four sessions) latency prior to an observed increase in on-task behavior and a decrease in challenging behaviors. When using behavior specific praise statements in secondary schools, O'Handley and colleagues (2023) that behavior specific praise statements produced immediate effects in decreasing challenging behaviors. After the first intervention session class wide student behavior demonstrated increases in appropriate behaviors. Further, Covington-Smith and colleagues (2011) also assessed the immediacy of the effects of behavior specific praise with preschool children without developmental disabilities. Researchers found immediate decreases in challenging behaviors among this age population as well. Two child participants demonstrated decreases in challenging behavior in the first intervention session and the third child participant demonstrated a decrease in challenging behavior in the second session. While considered an effective practice, the current research on the evidence-base of behavior specific praise for younger populations is mixed (Ennis et al., 2020; Moore et al., 2019). Thus, further examination

of how quickly young children respond to this treatment approach when compared to older populations warrants continued examination to further establish its effectiveness.

Second, this study amplifies the importance of understanding how contextual variables may have a potential role in the effectiveness of behavior specific praise during academic activities. For example, intervention match is a consideration widely discussed in the literature as being influenced by contextual variables (Schreibman et al., 2015; Wahman et al., 2023). Variables that may have influenced intervention match in this study include instructional materials, child temperament, and reinforcement potency (i.e., schedules of reinforcement). Research shows for young children with disabilities, appropriately matching the intervention tasks to child interests can promote prosocial behaviors and decrease challenging behaviors (Dunst et al., 2012). In addition, while our data are limited, both Rosie and Addie demonstrated a temperament that was easygoing and demonstrated persistence during academic activities. However, Alfie demonstrated a temperament that was more distractible with a higher activity level (Center for Child and Human Development, 2023). While anecdotal reports about the impact of contextual variables on participant responding are preliminary, these are important moderators for understanding for whom, and under what conditions is behavior specific praise effective.

Third, intervention match is also underscored in this study as it relates to reinforcement potency. Importantly, reinforcers, especially for young children, can change across time and decrease in potency depending on contextual variables (Ackerlund Brandt et al., 2024; Harper et al., 2021). While behavior specific praise can function as a reinforcer, praise is not inherently reinforcing. It must be conditioned as a reinforcer to be effective (Brophy, 1981). Thus, behavior specific praise may not be the appropriate reinforcement for some children (children may not be

reinforced by behavior specific praise) and could be based on the function of their behaviors. For example, escape seemed to be a more potent reinforcer for Alfie as he engaged in escape maintained behaviors. In addition, other aspects of the environment not measured during this study may have provided ample reinforcement, as opposed to the behavior specific praise. For example, the participant's positive relationship with the interventionist, leaving the classroom environment for a brief period, and instructional materials may have increased on-task behavior and engagement. These are important variables that should be considered as having a potential impact on children's engagement.

Finally, another consideration from this study is the schedule of reinforcement of behavior specific praise. Behavior specific praise has shown effectiveness in demonstrating lasting effects on young children's challenging behaviors and increasing prosocial behaviors when delivered on an appropriate schedule (O'Handley et al., 2023). Floress et al. (2018) suggest that behavior specific praise should be delivered once every two to 3.3 minutes. For this study, behavior specific praise was delivered once every 1-minute, considerably more frequently than the recommended rate. Although data is limited, rates higher than once every 1-minute may be considered to obtain desirable effects in natural environments. However, there is also the risk of the children becoming satiated on reinforcement. In addition, there may have been other reinforcers in the environment. For instance, spending one-on-one time with the implementer (attention) or taking a break from the classroom for a short period (escape). When thinking about principles of matching law (Cooper, Heron, & Heward, 2020, p.317), these variables and their related behavioral functions may have held higher reinforcement value than the behavior specific praise.

Limitations and Future Research

There are several limitations to this study. First, researchers did not conduct any receptive language assessment with participants prior to the study. Because of this, we are unable to assess whether the behavior specific praise statements were understood by the participants and to what extent those shaped their on-task behavior. If the implementer provided behavior specific praise to the child for coloring the appropriate worksheet but the child did not have receptive language skills, the behavior specific praise may lack its intended outcomes. Second, given the applied nature of this study, we were unable to control for competing variables in the natural environment (i.e., relocation to a new classroom, child absenteeism, school bell, children and teachers walking in the hallway) that impacted the frequency and efficiency of data collection.

A final limitation involves the data collection system selected for this study. Partial interval recording is known to overestimate behavior. If a behavior occurs in an interval for any duration, it is recorded. This affects both the child's on-task behavior and challenging behavior resulting in potential inflated results due to the data collection means selected for this study. Future research should continue to examine this intervention for young children with disabilities with careful attention paid to child characteristics and intervention match as it relates to schedule of reinforcement and function of behavior (Ennis et al., 2020). Of note, there is limited research assessing the efficacy of behavior specific praise with specific functions of behavior. Thus, future research should assess the effectiveness of behavior specific praise for differing functions of behavior (i.e., attention, escape, automatic, and tangible) and its effects on child challenging and on-task behaviors.

Altering the schedule of delivery of behavior specific praise to further assess its lasting effects on challenging behaviors and on-task behavior and engagement is warranted (O'Handley

et al., 2023). This could better inform the recommendation of rates of behavior specific praise delivery to teachers of young children with disabilities. Relatedly, altering activities during intervention may increase its value over time and child engagement (Alford et al., 2016). Varying the activity across participants and sessions may be more meaningful to some child participants. It is worth considering the benefits of matching participant activities to child characteristics.

REFERENCES

Ackerlund Brandt, J. A., LaCerra, V., Cassano, M. J., Shives, B. R. (2024). An evaluation of the reinforcing effectiveness of attention topographies on skill acquisition. American Psychological Association, 24(1), 20-24. https://doi.org/10.1037/bar0000279

Alford, B. L., Rollins, K. B., Padron, Y. N., & Waxman, H. C. (2016). Using systematic classroom observation to explore student engagement as a function of teachers' developmentally appropriate instructional practices (DAIP) in ethnically diverse pre-kindergarten through second-grade classrooms. *Early Childhood Education Journal*. 44, 623-635. DOI 10.1007/s10643-015-0748-8

Alphabet Coloring Book [PDF File]. (n.d.). Retrieved from https://craftyclassroom.com/alphabet-coloring-pages/

Artman-Meeker, K. M., & Hemmeter, M. L. (2013). Effects of training and feedback on teachers' use of classroom preventive practices. *Topics in Early Childhood Special Education*, 33(2), 112-123. https://doi.org/10.1177/0271121412447115

Brophy, J. (1981). Teacher praise: A functional analysis. *Review of Educational Research*. 51(1), 5-32.

Center for Child and Human Development. (2023). *Infant-Toddler Temperament Tool (IT^3).* Retrieved from https://www.ecmhc.org/temperament/

Cooper, J. O., Heron, T. E., Heward, W. L. (2020) *Applied Behavior Analysis* (3rd ed.). Pearson Education Inc.

Council for Exceptional Children. (2020, August 14). Initial practice-based standards for early interventionists/early childhood special educator. Council for Exceptional Children. https://exceptionalchildren.org/standards/initial-practice-based-standards-early-interventionists-early-childhood-special-educators

Covington Smith, S., Lewis, T. J, & Stormont, M. (2011). Behavioral supports for children with externalizing behavior in head start classrooms. *Journal of Positive Behavior Interventions*, 13(3), 133-143. DOI: 10.1177/1098300710379053

Dunst, C. J., Trivette, C. M., & Hamby D. W. (2012). Meta-Analysis of studies incorporating the interests of young children with autism spectrum disorders into early intervention practices. *Autism Research and Treatment*. DOI:10.1155/2012/462531

Ennis, R. P., Royer, D. J., Lane, K. L., Dunlap, K. D. (2020). Behavior-specific praise in pre-k–12 settings: Mapping the 50-year knowledge. *Behavioral Disorders*, 45(3), 131-147.

Floress, M. T., Berlinghof, J. R., Radar, R. A., Riedesel E. K. (2017). Preschool teachers' use of praise in general, at-risk, and special education classrooms. *Psychology in Schools*, 54(5). DOI: 10.1002/pits.22014

Floress, M. T., Jenkins, L. N., Reinke, W. M., & McKown, L. (2018). General education teachers' natural rates of praise: A preliminary investigation. *Behavioral Disorders*, 43 (4). DOI: 10.1177/0198742917709472

Fox, L., Dunlap, G., Hemmeter, M., Joseph, G. E., Strain, P. S. (2003). The teaching pyramid: A model for supporting social competence and preventing challenging behavior in young children. *National Association for the Education of Young Children* (NAEYC), 58 (4), 48-52. https://www.jstor.org/stable/42728957

Harper, A. M., Dozier, C. L., Briggs, A. M., Diaz de Villegas, S., Ackerlund Brandt, J. A., Jowett, E. S. (2021). Preference for and reinforcing efficacy of different types of attention in preschool children. *Journal of Applied Behavior Analysis*, 54, 882-902.

Horner, R. H., Sugai, G. (2015). School-wide PBIS: An example of applied behavior analysis implemented at a scale of social importance. *Behavior Analysis Practice*, 8, 80-85. DOI 10.1007/s40617-015-0045-4

Moore, T. C., Maggin, D. M., Thompson, K. M., Gordon, J. R., Daniels, S., & Lang, L. E. (2019). Evidence review for teacher praise to improve students' classroom behavior. *Journal of Positive Behavior Interactions*, 21(1), 3-18. https://doi.org/10.1177/1098300718766657

National Association for Education of Young Children. (Fall 2022). Our proud heritage. The evolution of family-centered services in early childhood special education. National Association for Education of Young Children. https://www.naeyc.org/resources/pubs/yc/fall2022/evolution-family-centered-services

O'Handley, R. D., Olmi, D. J., Dufrene, B. A., Radley, K. C., , & Tingstrom, D. H. (2023). The effects of different rates of behavior-specific praise in secondary classrooms. *Journal of Positive Behavior Interventions*, 25 (2), 118-130.

Powell, D., Dunlap, D., Fox, L. (2006). Prevention and Intervention for challenging behaviors of toddlers and preschoolers. *Infants & Young Children,* 19(1).

Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., Kasari, C., Ingersoll, B., Kaiser, A. P., Bruinsma, Y., McNerney, E., Wetherby, A., Halladay, A. (2015). Naturalistic developmental behavioral interventions: Empirically validated treatments for autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 45, 2411-2428.

Stormont, M. A., Covington Smith, S., & Lewis, T. J. (2007). Teacher implementation of precorrection and praise statements in head start classrooms as a component of a program-wide system of positive behavior support. *Journal of Behavioral Education*, 16, 280-290. DOI 10.1007/s10864-007-9040-3

Wahman, C. L., Fettig, A., Zimmerman, K. (2023). Social and emotional intervention research as justice: A case for accountability. *Remedial and Special Education*, 1-16. https://doi.org/10.1177/07419325221143761

Wong, C. Odom, S. L., Hume, K. A., Cox, A. W., Fettig, A., Kucharczyk, S., Brock, M. E., Plavnick, J. B., Fleury, V. P., Schultz, T. R. (2015). Evidence-based practices for children, youth, and young adults with autism spectrum disorder: A comprehensive review. *Journal of Autism and Developmental Disorders*, 45, 1951–1966. https://doi.org/10.1007/s10803-014-2351-z

APPENDIX A: PARTICIPANT DATA SHEET

Participant Data Sheet

Student: **Observer:** **Date:**	
Activity:	
Start time:	**End time:**

Operational definitions

Challenging Behavior: "any repeated pattern of behavior, or perception of behavior, that interferes with or is at risk of interfering optimal learning or engagement in prosocial interactions with peers and adults" (Powell et al., 2006). Specific challenging behaviors included (a) physical aggression, (b) property destruction, (c) vocal outbursts, (d) elopement, (e) tantrum, (f) off-task, and (g) noncompliance.

On-task behavior: Behaviors that indicate participation as well as "compliance with the demands of the setting and activity" (Covington-Smith et al., 2011). Participants were considered on-task if they: (a) physically oriented to the implementer when providing instructions, (b) physically oriented towards the task materials; and (c) they sit in their designated chair at the designated table.

Key

Challenging behavior (CB): -
On-task behavior (OT): +

10 second intervals

Minutes

	1		2		3		4		5		6	
BX	CB	OT	CB	OT	CB	OT	CB	OT	CB	OT	CB	OT
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

APPENDIX B: IMPLEMENTER DATA SHEET

Implementer Data Sheet

Implementer: **Participant:** **Observer:** **Date:**	
Start time:	**End time:**

Operational definitions

Behavior specific praise: Positive statements from adults "indicating approval of student behavior that specifies the behavior that meets approval" (Covington-Smith et al., 2011). Statements such as "I love how you are coloring your picture!", "thank you for waiting so patiently for the crayon!", and "I love how you are sitting in your seat with your feet on the floor!" would all be recorded as an occurrence. A nonoccurrence was recorded if statements given were similar to "good job" or "thank you", although they can be considered praise statements, they are no behavior specific. A nonoccurrence was also recorded if gestures such as a thumbs up or high fives were given to the participant.

Key

No behavior specific praise: leave blank
Behavior specific praise: +

	10 second intervals
Minutes	

	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Notes:

APPENDIX C: BASELINE PROCEDURAL FIDEALITY

Procedural Fidelity: Condition A		
Steps	**Task**	**Yes (Y) /No (N)/ Not applicable (N/A)**
1	**Assent**: Implementer asked participant if they would like to join you for an activity. For example, "Hello [student name], would you like to come with me and color?" If participant indicates yes, implementer directs participant to a separate table away from peers students classroom teachers. If participant indicates no, implementer says "Okay, we can try again later!"	**Y / N/ NA**
2	Implementer and participant sit at designated table.	**Y / N/ NA**
3	Data collectors started timer.	**Y / N/ NA**
4	Implementer began session by saying "Today we are going to…" and described the present activity.	**Y / N/ NA**
5	Implementer provided student with directions for the activity throughout the session as needed. For example, "Pick up the crayon and color this picture."	**Y / N/ NA**
6	Implementer engaged with the student throughout the session by discussing their activities such as, asking them questions, making comments, and sharing their thoughts, etc.. For example, "What do you think this is a picture of?" "I think this is a picture of a bear." "Do you enjoy coloring?" "I enjoy coloring too."	**Y / N/ NA**
7	If participant engaged in the following behaviors (elopement or flopping), implementer followed the protocol for discontinuing the intervention.	**Y / N/ NA**
8	If the participant engaged in physical aggression or property destruction, interventionist response blocked and provided simple redirective statements.	**Y / N/ NA**
9	No reprimands or correctives were provided to the participant throughout the duration of the session.	**Y / N/ NA**
10	Once the timer indicates 10 minutes, implementer ends the session by saying "We're all done. Let's go back to class and see what our friends are doing."	**Y / N/ NA**
11	Implementer directs student to join their peers.	**Y / N/ NA**
		Total: /11

APPENDIX D: INTERVENTION PROCEDURAL FIDEALITY

Procedural Fidelity: Condition B		
Steps	**Task**	**Yes (Y) /No (N)/ Not applicable (N/A)**
1	**Assent**: Implementer asked participant if they would like to join you for an activity. For example, "Hello [student name], would you like to come with me and color?" If participant indicates yes, implementer directs participant to a separate table away from peers students classroom teachers. If participant indicates no, implementer says "Okay, we can try again later!"	**Y / N/ NA**
2	Implementer and participant sit at designated table.	**Y / N/ NA**
3	Implementer set and started motivator.	
4	Data collectors started timer.	
5	Implementer began session by saying "Today we are going to…" and described the present activity.	**Y / N/ NA**
6	When indicated by the motivator, the implementer provided a behavior specific praise statement to the participant within 5 seconds. For example, "I love how you are holding the crayon!".	**Y / N/ NA**
7	Implementer provided student with directions for the activity throughout the session as needed. For example, "Pick up the crayon and color this picture."	**Y / N/ NA**
8	Implementer engaged with the student throughout the session by discussing their activities such as, asking them questions, making comments, and sharing their thoughts, etc.. For example, "What do you think this is a picture of?" "I think this is a picture of a bear." "Do you enjoy coloring?" "I enjoy coloring too."	**Y / N/ NA**
9	If participant engaged in the following behaviors (elopement or flopping), implementer followed the protocol for discontinuing the intervention.	**Y / N/ NA**
10	If the participant engaged in physical aggression or property destruction, interventionist response blocked and provided simple redirective statements.	**Y / N/ NA**
11	No reprimands or correctives were provided to the participant throughout the duration of the session.	**Y / N/ NA**
12	Once the timer indicates 10 minutes, implementer ends the session by saying "We're all done. Let's go back to class and see what our friends are doing."	**Y / N/ NA**
13	Implementer directs student to join their peers.	**Y / N/ NA**
		Total: /13