

Comparative Effects of Pre-session and Interspersed Attention on the Academic Achievement of a Fourth Grade Student in an Inclusive Elementary Classroom

Kerry Wilson Kisinger

Eastern Washington University USA

Abstract: *This study evaluated the comparative effects of pre-session and interspersed attention on the academic achievement of an at-risk student in an inclusive fourth-grade classroom. Data indicated an increase in academic achievement during both pre-session and interspersed attention conditions. Additionally, data on disruptive behavior displayed as an average over session type including baseline, pre-session and interspersed phases as measured in two-minute intervals indicate both pre-session and interspersed attention phases are effective at decreasing disruptive behavior compared to the baseline phase. Additional implications for research and practice are discussed.*

Keywords: Antecedent interventions, pre-session attention, noncontingent reinforcement, academic achievement, SWPBIS

INTRODUCTION

Increasingly, students with disabilities requiring more intensive behavioral supports are receiving special education services in general education setting (Agran et al., 2010). Many of these students who receive services in an inclusive classroom, may require specialized social supports and strategies (Malmqvist, 2016). Similarly, as students with higher incidence and lower incidence disabilities become more prevalent in general education classrooms, teachers and students alike express the need for behavioral support (Able et al, 2014; Von der Embse et al., 2011). Finally, Agran et al. (2010) continue to note that students with more severe cognitive or intellectual disabilities receive greater access to general education curriculum and general education classrooms than ever before. As a result, many of these students exhibit disruptive behaviors that need to be addressed by general education teachers (Kurth & Enyart, 2016).

Although many teacher-preparation programs require a course on classroom management prior to graduating with a degree in education, many programs provide inadequate support for meaningful classroom management skills when new teachers begin their teaching careers (Freeman et al., 2014; Oliver & Reschly, 2010). Classroom teachers are often ill-prepared for and overwhelmed by students' disruptive classroom behavior and there is a strong need for simple and effective interventions that teachers can use to prevent these behaviors from occurring (Westling, 2010).

In many traditional behavior management systems, consequences are implemented by an instructor following a challenging behavior in an attempt to decrease the likelihood of the behavior reoccurring (Martens et al., 1986). Unfortunately for teachers and students, this punitive model of classroom management is simply not effective for many students, particularly those with disabilities (Algozzine & Algozzine, 2007). A growing body of research indicates that such challenging behaviors can be diminished or eliminated by changing the classroom environment or by addressing events that precede the problem behavior (Kern & Clemens, 2007; Wood et al., 2018).

In recent years, Schoolwide Positive Behavior Interventions and Supports (SWPBIS) have been developed to address disruptive behaviors across students and settings. SWPBIS is the preferred classroom management framework for students with disabilities as outlined in the Individuals with Disabilities in Education Act (IDEA, 2004). Based on the criteria provided by Flay et al. (2005), SWPBIS is an evidence-based practice (EBP) framed within a multi-tiered approach to proactively address challenging behaviors both in the classroom or school-wide (Horner et al., 2010). SWPBIS has become a prominent model for addressing challenging behaviors in inclusive classrooms without resorting to suspensions, expulsions, or otherwise removing students from the classroom (Algozzine & Algozzine, 2007).

Based on the criteria set forth by Flay et al. (2005) SWPBIS is comprised of EBPs that have been successfully implemented across school settings (Horner et al., 2010). Specifically, SWPBIS has been implemented to obtain positive outcomes for minority students (Vincent & Tobin, 2011), low-income students, and students with disabilities (Marr et al., 2002). SWPBIS also has a positive impact on students with and without disabilities regarding academic achievement, attendance, and graduation (Freeman et al., 2015).

In addition to SWPBIS, antecedent-based strategies focus on preventing challenging behaviors from occurring by mitigating environmental factors that may negatively impact a behavior (Wood et al., 2018). This proactive approach to managing behavior often stands in stark contrast to more traditional strategies by managing classroom conditions that are conducive to providing students with an effective learning environment (Bambara & Kern, 2005) in which academic outcomes may be greatly improved (Kruger et al., 2015). A simple example of an antecedent-based intervention would be relocating a child away from a peer to the front of the class in order to prevent them from talking to a friend.

One effective antecedent-based intervention that can be effectively implemented in a whole school environment or the classroom is noncontingent reinforcement (NCR; Carr, Severtson, & Lepper, 2009). NCR is an intervention in which an individual gains access to a preferred, known reinforcer at regular intervals of time. Referred to as an abolishing operation, by providing scheduled access to the reinforcer, the reinforcing capacity is often diminished (Michael, 2000). Additionally, NCR is functionally related to a decrease in many disruptive behaviors displayed by students who are often served in the general education setting across disability categories (Tomlin & Reed, 2012; Moore et al., 2016) and behaviors (Kerth et al., 2009).

Another type of ABI, known generally as pre-session interventions, allows individuals to access meaningful reinforcers for a preset amount of time before they are asked to engage in a predetermined activity (Michael, 2000). Using the same abolishing operation principle utilized by NCR, by providing an individual an interval of time to interact with such a reinforcer; the reinforcing capacity may again be greatly diminished. For example, by providing a student with peer attention before a classroom activity, the individual may be less likely to engage in peer attention-seeking behaviors because they have already had access to the reinforcement of peer

interaction. Similar to NCR, these function-based interventions have demonstrated a functional relation with a decreased in many challenging behaviors across disability categories (Kelly et al., 2015), as well as across behaviors (Edrisinha et al., 2011).

Unfortunately, little research has been conducted pertaining to pre-session peer attention and NCR of peer attention for students with high-incidence disabilities. However, a functional relation with these interventions and a decrease in disruptive behavior for students with low-incidence disabilities such as intellectual disability (ID; Chung & Cannella-Malone, 2010; Virues-Ortega et al., 2013), autism spectrum disorder (ASD; Gouboth, Wilder, & Booher, 2007) and emotional and behavioral disability (EBD; Tomlin & Reed, 2012) has been established in the literature. Furthermore, very few studies on pre-session attention or NCR of attention have included assignment accuracy measures for these interventions. Chung and Cannella-Malone (2010) did include an academic measure for students on a pre-session intervention; however, this study was conducted individually with each student in isolation and not in a general education or classroom setting. Although results indicated an increase in academic responding for each participant, further research is necessary to determine a functional relation with academic improvement in an inclusive classroom.

Finally, no research currently exists comparing these two antecedent-based interventions (i.e., pre-session peer attention versus NCR of peer attention) regarding their functional relation with an increase in academic performance.

METHOD

PARTICIPANT

The participant in this study was a fourth-grade elementary school student who was socially at-risk (e.g., sent to office, assigned to in-school suspension, placed in out-of-school suspension) due to his disruptive behaviors in an inclusive classroom in a small private school in the Southeastern United States. He had been medically diagnosed for attention deficit hyperactivity disorder (ADHD) but was not currently receiving medical support. The participant was selected based on teacher nomination of students exhibiting peer attention-maintained behaviors such as talking off-topic and making noises or distracting gestures during instruction. The student, Jay (pseudonym), was a 10-year-old African American male selected because he demonstrated behaviors such as talking with his peers, playing with class materials, looking away from instructional materials and the classroom teacher.

SETTING

The setting for this study was a small private school located in the southeastern United States. At the time of the study, the school's demographics were 53% male and had a racial makeup of 55% White, 36% African American, 4% Asian, 2% Hispanic, and 2% Arabic/other. The intervention took place in an inclusive fourth-grade classroom consisting of 12 students, a licensed general education teacher, and licensed teacher's assistant during the reading/language arts instructional time. The intervention occurred mid-morning during the grammar portion of the instructional day across all phases of the intervention as determined by the researcher and classroom teacher.

EXPERIMENTER AND INTERVENTIONIST

The experimenter, trainer, and primary data collector was a former special education teacher holding licensure in K-12 General Curriculum with over seven years of experience

working with students with high-incidence disabilities in general education settings. The experimenter was a third-year doctoral candidate with a focus on applied behavior analysis and positive behavioral supports.

The interventionist was the general education classroom teacher in each phase of the intervention. The teacher held licensure in K-5 education and had taught for over 20 years in both public and private schools. The classroom teacher was responsible for teaching all subjects throughout the day and had support from a part-time teacher's assistant.

RESEARCH DESIGN

A single-case ABAC reversal design with an embedded alternating-treatments design (Cooper et al., 2020) was used for this study. The purpose of the reversal phase and initial baseline, in addition to the alternating treatment, was to compare the effects of each treatment phase against a baseline condition. Once a stable baseline condition was established for a minimum of five data-collection sessions, the student entered the first phase of the intervention. Data were collected until the student had baseline data for five sessions and a minimum of 10 total sessions of alternating treatment between pre-session and interspersed attention (i.e., five sessions per treatment phase). Each phase continued until enough data were collected to adequately determine the level, trend, and variability of the data. During the reversal phase, data were collected for a minimum of five sessions in a baseline condition. Additional data were collected for a final pre-session condition (i.e., five sessions of pre-session attention as determined by the classroom teacher's preference).

DEPENDENT VARIABLE

The first dependent variable collected was academic achievement. Academic achievement in this instance was a curriculum-based measurement (CBM; Deno, 1985) that was designed by the classroom teacher to measure progress and academic success in a given subject. A CBM was chosen because it most closely matches real-world conditions that a general education teacher would implement to measure classroom success and acquisition of new academic skills. The CBM was measured by reporting the percentage of correct responses on assigned classwork during each session. Assigned classwork was defined as any written activity (e.g., worksheets or quizzes) requiring completion as directed by the classroom teacher. The percentage of correct responses was calculated by dividing the number of correct items by the total number of items required to complete.

Another dependent variable was disruptive behavior displayed by the student during a classroom lesson or activity. Disruptive behavior was defined as (a) talking without permission or off-topic, (b) inappropriately engaging other students (e.g., touching another student or making gestures towards another student), (c) being out-of-seat for more than five seconds during lesson, and (d) any distracting noises emitted by the mouth (e.g., whistling) or by interacting with the physical classroom environment (e.g., tapping on classroom furniture with fingers or feet). These disruptive behaviors created distractions in the learning environment influencing the teacher's ability to instruct the class and student's abilities to pay attention to instruction. Data on the dependent variable were collected using partial interval recording measured in 10s intervals throughout each 30 min session and are reported as disruptive behaviors across sessions as measured in two-minute variables (see Figure 2). This graph encompasses the baseline, NCR, and pre-session conditions across the 30 min session.

PROCEDURES

FUNCTIONAL BEHAVIOR ASSESSMENT

Prior to collecting baseline data, the experimenter conducted a brief functional behavior assessment (FBA) to determine the potential functions (e.g., gain attention, escape task demands) of the student's disruptive behavior in the classroom. The FBA consisted of a teacher interview and a series of direct observations as outlined by O'Neill et al. (1997). The teacher interview provided insight into the manifestation of the problem behavior, when it occurred, and what happened after. The direct observations were used to corroborate the teacher interview and helped determine the events preceding the challenging behavior, as well as the consequences that immediately followed. The FBA showed that teacher and peer attention were likely maintaining the student's disruptive behavior.

TEACHER TRAINING

The interventionist for the study was the classroom teacher. All training was conducted by the experimenter in a general education classroom during instructional planning time across two separate sessions. The first session was to explain the intervention, while the second session focused on the teacher implementing the intervention to mastery criteria (e.g., understanding the difference between interventions, using appropriate timing, and instructing students how to perform the intervention). The experimenter instructed the classroom teacher on how to (a) accurately implement each phase of the intervention, (b) when to use pre-session versus interspersed attention (i.e., schedule of alternating treatments), and (c) why it is important to follow the intervention as prescribed.

BASELINE

Data were collected during the baseline phase of the study to determine the percentage of intervals of disruptive behavior. Students did not engage in planned pre-session or interspersed attention sessions and data were collected in 10s intervals for each instructor-led activity for a minimum of 5 sessions to establish a stable baseline.

INTERVENTION

There were two independent variables in this study. The first independent variable was pre-session attention. During this phase, all classroom students were placed in teacher-assigned pairs and engaged one another for 2-min per session to discuss information relevant to the planned daily lesson as directed by the classroom teacher. This timed session immediately preceded any classroom instruction. No other interventions relating to the study occurred after the pre-session attention session during this treatment phase.

The second independent variable was interspersed attention. During this phase, students were paired together and engaged one another for a minimum two-minute timed session to discuss information relating to the planned daily lesson as directed by the classroom teacher before instruction (i.e., same procedure as the pre-session phase) and then again at planned 10-min intervals. The timed sessions occurred approximately every 10-min after the pre-session intervention as signaled by the experimenter to the interventionist until the end of the session (approximately 30 minutes).

Following the initial baseline condition, the two interventions (pre-session and interspersed attention) were randomly alternated with no intervention delivered more than two times

consecutively. After 10 sessions of alternating treatments, a difference in levels between the data paths was clear and a return to baseline was conducted for five more sessions with stable data. In the final phase, the experimenter asked the teacher her preference to continue with the pre-session intervention or the interspersed intervention. The teacher selected the pre-session intervention.

PROCEDURAL FIDELITY

Procedural fidelity was calculated for 100% of the intervention sessions. Using the procedural checklists, the experimenter viewed recorded sessions to calculate procedure fidelity by dividing the number of correct steps by the total number of steps in the checklist and then multiplying by 100 (Cooper et al., 2020). Procedural fidelity was 100% across pre-session attention during alternating treatments, 95 % (range of 75%-100%) across interspersed attention during alternating treatments, and 100% across the teacher-choice phase (i.e., pre-session attention).

INTEROBSERVER AGREEMENT

Interobserver agreement (IOA) data were collected for the dependent variable for 20% of the sessions across each phase of the intervention (i.e., baseline 1, pre-session, interspersed, baseline 2, and teacher-choice). All IOA sessions were conducted using videos recorded by the primary data collector that were later reviewed by a second scorer using the interval-by-interval agreement method. IOA had mean agreement of 86% with a range between 80% and 95%.

RESULTS

RESULTS FOR PRESESSION ATTENTION

Results displaying the effects of pre-session attention on the percentage of assignment completion are located in Figure 1. A visual analysis of the data reveals a slight increase in the percentage correct on assigned classroom tasks during the pre-session attention phase compared to an initial baseline. During the initial baseline condition, Jay received a moderate percentage of correct responses to assigned academic tasks ($M = 71\%$) with noted variability (65%-80%). Upon implementation of the pre-session attention intervention, Jay was assessed by the classroom teacher as having higher percentages of correct responses in his assigned class work ($M = 83\%$) with continued variability (76%-94%). With the return to baseline condition, Jay's percentage of correct responses decreased slightly ($M = 80\%$) with a variable range of correct responses (50%-90%). The final best-fit condition (i.e., pre-session attention), concluded with a marked increase in correct responses ($M = 100\%$) on the last two assigned tasks.

RESULTS FOR INTERSPERSED ATTENTION

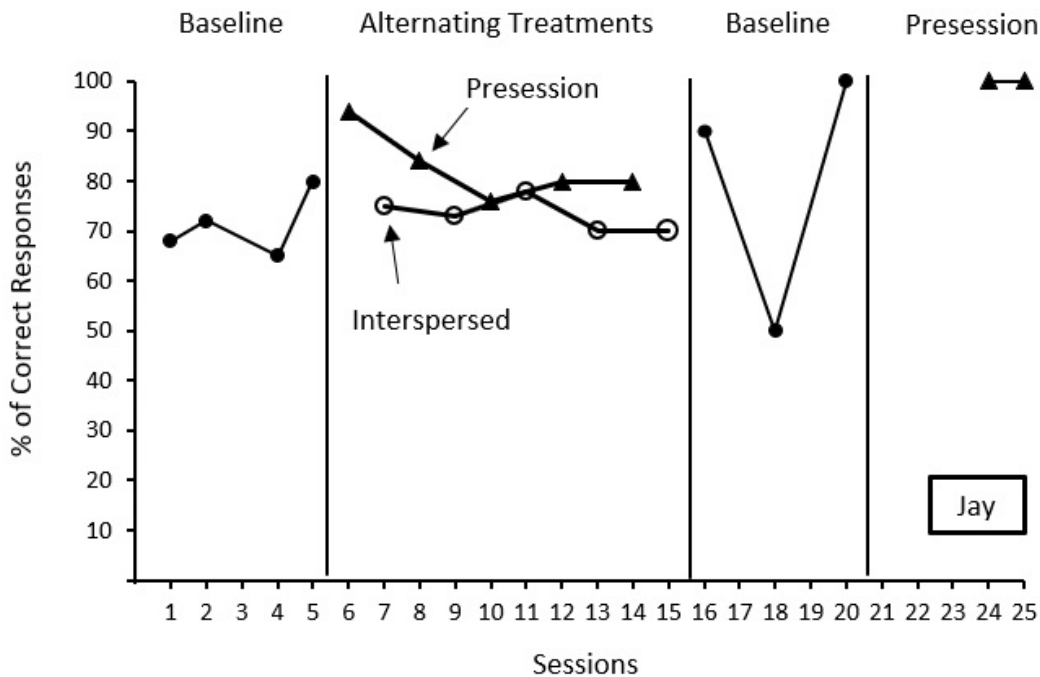
Results displaying the effects of interspersed attention on the percentage of assignment completion are located in Figure 1. A visual analysis of the data revealed a slight increase in the percentage of correct responses on assigned classroom tasks throughout the interspersed attention condition. During the initial baseline condition, Jay received a moderate percentage of correct responses to assigned academic tasks ($M = 71\%$) with noted variability (65%-80%). However, upon implementation of the pre-session attention intervention, Jay scored was assessed at higher percentages of correct responses in his assigned class work ($M = 73\%$) with continued variability (70%-78%). With the return to baseline condition, Jay's percentage of correct responses X ($M = 80\%$) with a variable range of correct responses (50%-100%).

COMPARING PRESESSION AND INTERSPERSED ATTENTION PHASES

Results displaying the effects of pre-session and interspersed attention on the percentage of academic achievement are located in Figure 1. During the alternating treatment condition pre-session attention sessions, Jay scored 85% correct (range of 76%-94%) on assigned academic tasks. Additionally, during the interspersed attention sessions, Jay scored 73% correct (range of 70%-78% on classroom assignments). The initial baseline percentage of correct responses ($M = 71\%$; range of 65%-80%) was lower than both treatment conditions indicating a functional relation for pre-session attention, as well as interspersed attention, and an increase in correct responses on academic tasks. As the interventions are compared with each other, the data suggest that pre-session attention has a higher increase ($M = 14\%$) in correct academic responses than the interspersed attention condition ($M = 2\%$).

Figure 1

Percentage of correct responses on assigned tasks by Jay across all sessions

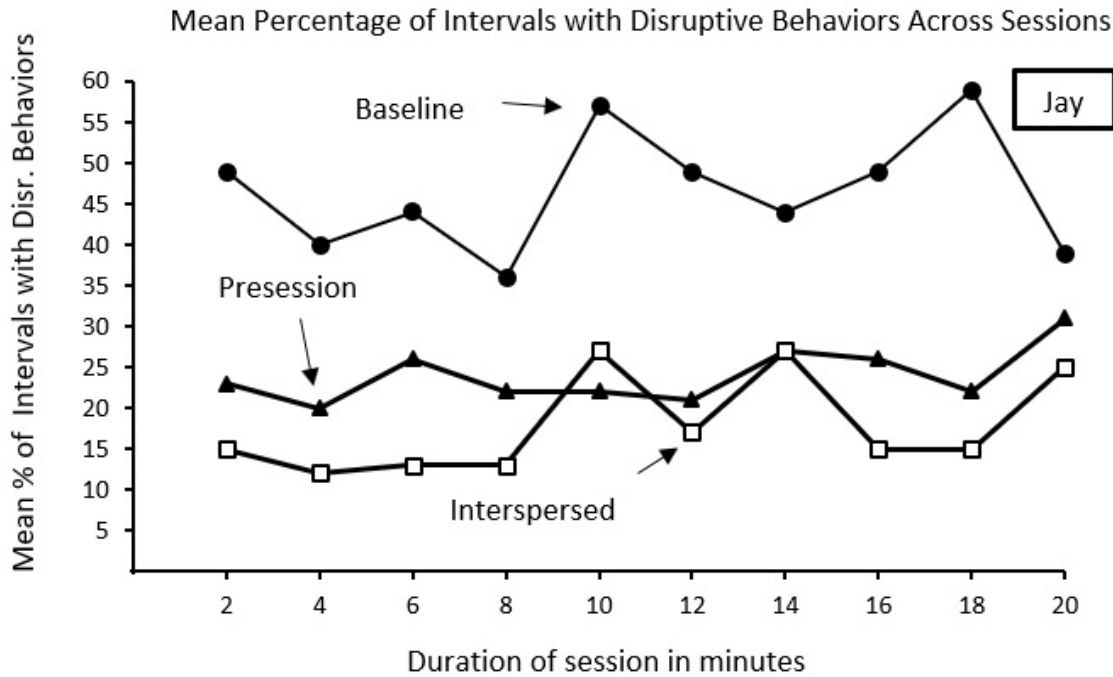


Results displaying the effects of pre-session and interspersed attention on disruptive behavior are located in Figure 2. This data was generated by adding all intervals that contained disruptive behavior every 12 intervals (i.e., 2-min) for all sessions for each condition (i.e., baseline, pre-session, and interspersed attention), and then dividing by the total intervals to obtain a mean. For example, during the interspersed attention condition, to obtain the first data point, the researcher added all intervals containing disruptive behavior during the first 2-min of every interspersed attention session, and then divided by the total amount of intervals to report a mean. This process was repeated for the baseline and pre-session attention conditions and then reported on the figure below. The baseline data show moderately high, variable levels of disruptive behavior throughout the session. The pre-session attention data show lower, more stable levels of disruptive behavior across the same time period throughout the session. Finally, the interspersed attention

data show slightly lower, more variable levels of disruptive behavior with slight increase occurring at the 10 and 20-min mark.

Figure 2

Average percentage of disruptive behavior displayed by Jay across sessions as measured in 2 min intervals



DISCUSSION

Results of this study indicated that a modest overall increase in percentage correct on academic tasks ($M = 73\%$) during the interspersed attention condition compared to the initial baseline phase of this study ($M = 71\%$). However, during the reversal phase (i.e., baseline phase) of the intervention, Jay increased his percentage of correct responses ($M = 80\%$) on his assigned classroom tasks. This disparity could be explained by a number of factors in the classroom environment. All data were collected during the Language Arts portion of Reading class which encapsulated grammar, sentence diagramming, and later sentence and paragraph composition. During the reversal phase, students were instructed to compose their own sentences and those were subjectively scored by the classroom teacher using a star-rating system of one to five stars including half-star ratings. The researcher then converted the star-rated assessments to percentages correct. Additionally, for two of the five return-to-baseline conditions no assessments were available to score, so the sample is smaller for this condition than the previous baseline as well in interspersed attention condition.

While the results of this study cannot conclude a functional relation with interspersed attention and an overall increase in percentage of correct responses on assigned tasks, findings indicated that this intervention did not hinder the student from academic performance. In other words, this intervention did not appear to have an adverse effect on the student's overall ability to accurately complete classroom assignments. Since the interspersed attention intervention was

based off an academic intervention (i.e., Think, Pair, Share), it is reasonable to conclude that little academic time was lost due to classroom implementation.

When compared to an initial baseline condition ($M = 71\%$ correct responses), results of this study indicated an increase in the percentage of correct responses on assigned classwork for the academic dependent variable in each condition. The percentage of correct responses on assigned tasks during the interspersed condition are lower than the pre-session condition, but also more stable and with no discernible trend.

Additionally, the pre-session intervention data report a 14% overall increase in correct responses compared to a 2% increase during the interspersed attention phase. One possible explanation for these results may be that the interspersed attention condition was too distracting for the participant to actively engage in his assigned work. The first paired partner-talk session often centered on reviewing a previous lesson or helping a peer with something they did not understand. These sessions provided attention for the target student, but also helped focus their attention on the academic topic. However, the interspersed attention session 10 minutes into a lesson, while beneficial for providing attention, may have actually served as a distraction for the participant.

In regard to the second dependent variable, results of this study indicated a decrease in disruptive behavior across an instructional session across the pre-session and interspersed attention conditions. To measure this dependent variable, every 2-min of instructional time (i.e., 12 intervals) were averaged to report the mean percentage of off-task behaviors. As shown in Figure 2, data in the baseline condition were variable throughout the sessions with marked increases at the 10 min and 18 min time points. However, no discernible pattern emerged regarding a consistent increase or decrease in disruptive behavior as the lesson continued.

The pre-session attention condition demonstrated the most stable data throughout with a slight increasing trend towards the end of the sessions. Interestingly, during the first 10 minutes of the averaged sessions, the pre-session condition consistently showed slightly elevated instances of disruptive behavior compared to the interspersed intervention during the same timeframe. These results are notable because both the pre-session and interspersed attention interventions are implemented identically until 10 minutes into the session in which students are directed to pair with a partner during the interspersed condition. Additionally, the student was not informed of the condition (i.e., pre-session attention or interspersed attention) throughout the course of the study and therefore would not be anticipating another peer attention session during the interspersed condition.

Finally, while the interspersed attention condition demonstrated lower levels of disruptive behavior across an instructional session when compared to the pre-session condition, this condition was also more variable. There was a notable increase in disruptive behaviors at the 10 and 20-min mark indicating that perhaps the abolishing effects of peer attention were beginning to wane. Although this increase in disruptive behavior was not mirrored during the pre-session-only condition for this same duration of time. The increase in disruptive behavior at the 10-min mark also coincided with an increase in disruptive behaviors occurring during the baseline conditions as well. Additionally, after the interspersed condition (i.e., partner talk) was implemented 10 minutes into the session, there was a 10% decrease in disruptive behavior in the following two-minute time period. However, an 8% decrease occurred over the same time in the baseline condition.

Results from this study indicated several possible limitations. The first noted limitation was the setting of the classroom. A total number of 12 students were present, on average, throughout the course of the study. Although this group is heterogenous in their academic achievement levels,

race, gender, and socio-economic status, it may not represent the average public-school general education classroom solely because of the small number of students. Due to the number of students, the classroom teacher could perhaps provide more attention, feedback, and supervision for each student. Additionally, a classroom teacher's assistant, and often more than one, was generally available to provide academic or behavioral assistance if necessary.

The second limitation is that the academic variable for assignment accuracy was flawed in several ways. The measure was intended to be taken on completed, assigned classroom tasks, and not an arbitrary researcher-created measure. However, as the year and lessons progressed, so did the difficulty. This fact did not hinder the participant's ability to complete the tasks but may have had an effect on his scoring (i.e., percentage correct) of the assessments. For example, the students started out the term identifying parts of speech, continued to create their own sentences, and finally were asked to develop entire paragraphs. Additionally, all tasks were scored by the classroom teacher. At first, scores were calculated as the number of correct divided by the number possible to determine a percentage. However, as the students were asked to develop sentences and paragraphs the teacher would subjectively score the students on a system of one to five stars with five being the highest ranking. No rubric was provided for the students as this was informal classroom work that was the closest qualifying CBM. The stars achieved were divided by five (i.e., the total number of possible stars) by the researcher to determine a percentage. Finally, a scored classroom task was not available for every session.

SUGGESTIONS FOR FUTURE RESEARCH AND IMPLICATIONS FOR PRACTICE

The first suggestion for future research would be for researchers to focus on collecting data on academic variables for behavioral interventions. Much of the previously reviewed literature did not occur in an educational setting (e.g., interventions were completed in a residential, medical, or clinical setting), but the studies that did take place in a classroom often neglected any sort of academic variable. SWPBIS acknowledges the correlation between a decrease in challenging behavior and an increase in academic achievement (Flay et al., 2005), but data pertaining to instructional success, participation, or academic achievement still seems to be lacking in the field.

Additional future research should address the effects of pre-session and interspersed interventions on disruptive behavior maintained by other functions (i.e., escape and automatic reinforcement). The participant in this study demonstrated disruptive behaviors predominately maintained by adult and peer attention; however, peer-mediated attention sessions may also provide support for students with escape-maintained behaviors. These pre-planned breaks in direct instruction may alter the motivating operation by providing temporary relief from an aversive task (i.e., the teacher's instruction) and temporarily decrease students' disruptive behaviors to avoid those conditions. Currently no research has been conducted to determine the effects of pre-session and interspersed attention interventions on escape-maintained disruptive behavior and academic engagement. Finally, although there is an existing body of research (Chung & Cannella-Malone, 2010; Rispoli et al., 2014; Scalzo & Davis, 2017) that suggests a functional relation between pre-session and interspersed attention interventions and a decrease in automatically reinforced behaviors (e.g., rocking or moving feet back and forth), further research is necessary to determine the mechanism for this relation and to generalize the results.

Results from this study also indicate several implications for practice. First, antecedent-based behavioral interventions can be academic in nature and related to classroom content. This intervention demonstrated that students could share and discuss content related to the lesson in the general education classroom as a means of delivering attention to a target student. General

education teachers should consider pairing students together, not to discuss a preferred or nonrelated topic, but to engage each other in a short review of a previous session, a reaction to recently learned classroom content, or perhaps provided feedback on each other's classroom work. In this manner, classroom time is being put to good work by keeping students focused on academic tasks while also engaging each other in appropriate conversation.

The final implication for practice is that these antecedent interventions can be introduced class wide and may benefit non-targeted students as well. Although, no data was collected for additional students, it is possible that both pre-session and NCR of peer attention benefited other students in the classroom as well. Although the intervention only targeted one student, the delivery of the intervention was presented to the entire class by the general education instructor.

REFERENCES

- Able, H., Srechovic, M. A., Schultz, T., Garwood, J. D., Sherman, J. (2014). views from the trenches: Teacher and student supports needed for full inclusion of students with ASD. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, 38, 44-57.
- Agran, M., Wehmeyer, M., Cavin, M., & Palmer, S. (2010). Promoting active engagement in the general education classroom and access to the general education curriculum for students with cognitive disabilities. *Education and Training in Autism and Developmental Disabilities*, 45, 163-174.
- Algozzine, K., & Algozzine, B. (2007). Classroom instructional ecology and school-wide positive behavior support. *Journal of Applied School Psychology*, 24, 29-47.
- Baker, J. C., Hanley, G. P., & Mathews, R. M. (2006). Staff administered functional analysis and treatment of aggression by an elder with dementia. *Journal of Applied Behavior Analysis*, 39, 469-474.
- Bambara, L. M., & Kern, L. (2005). *Individualized supports for students with problem behaviors*. New York, NY: Guilford Press.
- Briesch, A. M., Chafouleas, S. M., Neugebauer, S. R., & Riley-Tillman, T. C. (2013). Assessing influences on intervention implementation: Revision of the Usage Rating Profile-Intervention. *Journal of School Psychology*, 51, 81-96.
- Britton, L. N., Carr, J. E., Kellum, K. K., Dozier, C. L., & Weil, T. M. (2000). A variation of noncontingent reinforcement in the treatment of aberrant behavior. *Research in Developmental Disabilities*, 21, 425-435.
- Carr, J. E., Severtson, J. M., & Lepper, T. L. (2009). Noncontingent reinforcement is an empirically supported treatment for problem behavior exhibited by individuals with developmental disabilities. *Research in Developmental Disabilities*, 30, 44-57.
- Chung, Yi-Chieh & Malone, Helen. (2010). The Effects of Pre-session Manipulations on Automatically Maintained Challenging Behavior and Task Responding. *Behavior Modification*. 34. 479-502. 10.1177/0145445510378380.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). *Applied behavior analysis* (3rd ed.). Pearson.
- Deno, S. L. (1985). Curriculum-based measurement: The emerging alternative. *Exceptional Children*, 52(3), 219-232.
- Edrisinha C, O'Reilly M, Sigafos J, Lancioni G, Choi HY. Influence of motivating operations and discriminative stimuli on challenging behavior maintained by positive reinforcement. *Research in developmental disabilities*, 32(2), 836-845.

- Falcomata, T. S., Roane, H. S., Hovanetz, A. N., Kettering, T. L., & Keeney, K. M. (2004). An evaluation of response cost in the treatment of inappropriate vocalizations maintained by automatic reinforcement. *Journal of Applied Behavior Analysis, 37*, 83–87.
- Fisher, W. W., Thompson, R. H., DeLeon, I. G., Piazza, C. C., Kuhn, D. E., Rodriguez-Catter, V., & Adelinis, J. D. (1999). Noncontingent reinforcement: Effects of satiation versus choice responding. *Research in Developmental Disabilities, 20*, 411–427.
- Flay, B. R., Biglan, A., Boruch, R. F., Castro, F. G., Gottfredson, D., Kellam, S., ... Ji, P. (2005). Standards of evidence: Criteria for efficacy, effectiveness and dissemination. *Prevention Science, 6*, 151–175.
- Freeman, J., Simonsen, B., Briere, D., & Macsuga-Gage, A.S. (2014). Pre-service teacher training in classroom management: A review of state accreditation policy and teacher preparation programs. *Teacher Education and Special Education, 37*, 106-120.
- Goran, L.G., & Gage, N.A. (2011). A comparative analysis of language, suspension, and academic performance of students with emotional disturbance and students with learning disabilities. *Education and Treatment of Children, 34*, 469-488.
- Gouboth, D., Wilder, D.A., & Booher, J. (2007). The effects of signaling stimulus presentation during noncontingent reinforcement. *Journal of Applied Behavior Analysis, 40*, 725-730.
- Hagopian, L. P., Crockett, J. L., van Stone, M., DeLeon, I.G., Bowman, L.G. (2000). Effects of noncontingent reinforcement on problem behavior and stimulus engagement: The role of satiation, extinction, and alternative reinforcement. *Journal of Applied Behavior Analysis, 33*, 433–449.
- Hanley, G. P., Piazza, C. C., & Fisher, W. W. (1997). Noncontingent presentation of attention and alternative stimuli in the treatment of attention-maintained destructive behavior. *Journal of Applied Behavior Analysis, 30*, 229–237.
- Horner, R. H., Albin, R. W., Sprague, J. R., & Todd, A. W. (2000). Positive behavior support. In M. Snell & F. Brown (Eds.), *Instruction of students with severe disabilities* (7th ed.) (pp.207-243). Upper Saddle River, NJ: Merrill.
- Horner, R. H., & Carr, C. G. (1997). Behavioral support for students with severe disabilities: Functional assessment and comprehensive intervention. *Journal of Special Education, 31*, 84-104.
- Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education. *Exceptional Children, 71*, 165-179.
- Horner, R. H., Sugai, G., & Anderson, C. M. (2010). Using neutralizing routines to reduce problem behaviors. *Journal of Applied Behavior Analysis, 30*, 601-614.
- Keith, J. M, & Mccray, A. D. (2002). Juvenile offenders with special needs: Critical issues and bleak outcomes. *International Journal of Qualitative Studies in Education, 15*, 691-710.
- Kelly, Amanda & Axe, Judah & Allen, Ronald & Maguire, Russell. (2015). Effects of pre-session pairing on the challenging behavior and academic responding of children with autism. *Behavioral Interventions, 30*.
- Kern, L., Choutka, C. M., & Sokol, N. G. (2002). Assessment-based antecedent interventions used in natural settings to reduce challenging behavior: An analysis of literature. *Education and Treatment of Children, 25*, 113-130.
- Kern, L., & Clemens, N. H. (2007). Antecedent strategies to promote appropriate classroom behavior. *Psychology in the Schools, 44*, 65-75.

- Kerth, D. M., Progar, P. R., & Morales, S. (2009). The effects of non-contingent self-restraint on self-injury. *Journal of Applied Research in Intellectual Disabilities*, 22, 187–193.
- Kruger, A. M., Strong, W, Daly, E. J., O'Connor, M., Sommerhalder, M. S., Holtz, J... & Heifner, A. (2015). Setting the stage for success through antecedent intervention. *Psychology in the Schools*, 53, 24-38.
- Kurth, J. A., & Enyart, M. (2016). Schoolwide positive behavior supports and students with significant disabilities: Where are we? *Research and Practice for Persons with Severe Disabilities*, 41, 216-222.
- Lane, K., Carter, E., Common, E., & Jordan, A. (2012). Teacher expectations for student performance: Lessons learned and implications for research and practice. In B. G. Cook, M. Tankersley, & T. J. Landrum (Eds.), *Classroom behavior, contexts, and interventions: Advances in learning and behavioral disabilities* (Vol. 25, pp. 95-129). Bingley, UK: Emerald.
- Long, E. S., Hagopian, L. P., DeLeon, I. G., Marhefka, J. M., & Resau, D. (2005). Competing stimuli in the treatment of multiply controlled problem behavior during hygiene routines. *Research in Developmental Disabilities*, 26, 57–69.
- Malmqvist, J. (2016). Working successfully towards inclusion—or excluding pupils? A comparative retroductive study of three similar schools in their work with EBD. *Emotional & Behavioural Difficulties*, 21, 344-360.
- Marcus, B. A., & Vollmer, T. R. (1996). Combining noncontingent reinforcement and differential reinforcement schedules as treatment for aberrant behavior. *Journal of Applied Behavior Analysis*, 29, 43–51. doi:10.1901/jaba.1996.29-43
- Marr, M. B., Audette, B., White, R., Ellis, E., & Algozzine, B. (2002). School-wide discipline and classroom ecology. *Special Services in the Schools*, 18, 55-73.
- Martens, B. K., Peterson, R. L., Witt, J. C., & Cirone, S. (1986). Teacher perceptions of school-based interventions. *Exceptional Children*, 53, 213-223.
- McComas, J.J., Thompson, A., & Johnson, L. (2003). The effects of pre-session attention of problem behavior maintained by different reinforcers. *Journal of Applied Behavior Analysis*, 36, 297-307.
- McCord, J., Widom, C. S., Bamba, M. I., & Crowell, N. A. (Eds.). (2000). *Juvenile crime juvenile justice: Panel on juvenile crime: Prevention, treatment, and control*. Washington, DC: National Academy Press.
- Michael, J. (2000). Implications and refinements of the establishing operation concept. *Journal of Applied Behavior Analysis*, 33, 401-410.
- Moore, T. C., Robinson, C. C., Coleman, M. B., Cihak, D. F., & Park, Y. (2016). Noncontingent reinforcement to improve classroom behavior of a student with developmental disability. *Behavior Modification*, 40, 640-657.
- Morris, K. A., & Morris, R. J. (2006). Disability and juvenile delinquency: issues and trends. *Disability and Society*, 21, 613-627.
- Oliver, R. M., & Reschly, D. J. (2010). Special education teacher preparation in classroom management: Implications for students with emotional and behavioral disorders. *Behavioral Disorders*, 35, 188-199.
- O'Neill, R. E., Horner, R. H., Albin, R. W., Sprague, J. R., Storey, K., & Newton, J. S. (1997). *Functional assessment and program development for problem behavior: A practical handbook* (2nd ed.). Brooks/Cole.

- O'Reilly, M., Chaturi, E., Sigafos, J., Lancioni, G., Machalicek, W., & Massimo, A. (2007). The effects of pre-session attention on subsequent attention-extinction and alone conditions. *Journal of Applied Behavior Analysis, 40*, 731-735.
- Patterson, S. T. (2009). The effects of teacher-student small talk on out-of-seat behavior. *Education and Treatment of Children, 32*, 167-174.
- Phillips, C. L., Iannaccone, J. A., Rooker, G. W., & Hapopian, L. P. (2017). Noncontingent reinforcement for the treatment of severe problem behavior: An analysis of 27 consecutive applications. *Journal of Applied Behavior Analysis, 50*, 357-376.
- Rasmussen, K., & O'Neill, R. E. (2006). The effects of fixed-time reinforcement schedules on problem behavior of children with emotional and behavioral disorders in a day-treatment classroom setting. *Journal of Applied Behavior Analysis, 39*, 453-457.
- Rapp, J. T. (2004). Effects of prior access and environmental enrichment on stereotypy. *Behavioral Interventions, 19*, 287-295.
- Rispoli, M., O'Reilly, M., Lang, R., Machalicek, W., Davis, T., Lancioni, G., & Sigafos, J. (2011). Effects of motivating operations on problem and academic behavior in classrooms. *Journal of Applied Behavior Analysis, 44*, 187-192.
- Roantree, C. F., & Kennedy, C. H. (2006). A paradoxical effect of pre-session attention on stereotypy: Antecedent attention as an establishing, not an abolishing operation. *Journal of Applied Behavior Analysis, 39*, 381-384.
- Skiba, R.J., Arredondo, M.I., & Williams, N.T. (2014). More than a metaphor: the contribution of exclusionary discipline to a school-to-prison pipeline. *Equity and Excellence in Education, 47*, 546-564.
- Sprague, J., Holland, K., & Thomas, K. (1997). The effect of noncontingent sensory reinforcement, contingent sensory reinforcement, and response interruption on stereotypical and self-injurious behavior. *Research in Developmental Disabilities, 18*, 61-77.
- Sullivan, A. L., Van Norman, E. R., & Klingbeil, D. A. (2014). Exclusionary discipline of students with disabilities: Student and school characteristics predicting suspension. *Remedial and Special Education, 35*, 199-210.
- Tomlin, M., & Reed, P. (2012). Effects of fixed-time reinforcement delivered by teachers for reducing problem behavior in special education classrooms. *Journal of Behavior Education, 21*, 150-162. *Behavioral Disorders, 33*, 23-32.
- U.S. Department of Education, National Center for Education Statistics. (2012). *Digest of Education Statistics, 2011* (NCES 2012-2010).
- Vincent, C. G., & Tobin, T. J. (2011). The relationship between implementation of school-wide positive behavior support (SWPBS) and disciplinary exclusion of students from various ethnic backgrounds with and without disabilities. *Journal of Emotional and Behavioral Disorders, 19*(4), 217-232
- Virues-Ortega, J., Iwata, B. A., Fahmie, T. A., & Harper, J. M. (2013). Effects of alternative responses on behavior exposed to noncontingent reinforcement. *Journal of Applied Behavior Analysis, 46*, 603-612.
- von der Embse, N., Brown, A. & Fortain, J. (2011). Reducing problem behavior and promoting inclusion for students with Autism Spectrum Disorders. *Intervention in School and Clinic, 47*, 22-30. d
- Wallace, M. D., Iwata, B. A., Hanley, G. P., Thompson, R. H., & Roscoe, E. M. (2012). Noncontingent reinforcement: A further examination of schedule effects during treatment. *Journal of Applied Behavior Analysis, 45*, 709-719.

- Westling, D. L. (2010). Teachers and challenging behavior: Knowledge, views, and practices. *Remedial and Special Education, 31*, 48-63.
- Wood, C. L., Kisinger, K. W., Brosh, C. R., Fisher, L. B., & Muharib, R. (2018). Stopping behavior before it starts: Antecedent interventions for challenging behavior. *Teaching Exceptional Children, 50*(6), 356-363.