Choice versus Reinforcement: Which Produces Better Effects in Decreasing Disruptive Behavior for Students with or at Risk of Emotional and Behavioral Disorder?

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Choice versus Reinforcement: Which Produces Better Effects in Decreasing Disruptive Behavior for Students with or at Risk of Emotional and Behavioral Disorder?

by

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Applied Behavior Analysis
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Date of Approval:
March 10, 2020

Keywords: activity choice, classroom, differential reinforcement without extinction, emotional and behavioral disorder, teacher-based intervention

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DEDICATION

This paper is dedicated to my parents, Rita and Chris, and my brothers, Cameron and Connor. Thank you for the love, support, and encouragement that you have all provided me through my life, especially these past three years. Thank you for teaching me the value of family and standing up for oneself in times of trouble. I could not have done this without you all.

Also, thank you to the great friends I have made at USF along the way. You all have made a lasting impression on me and helped me develop to the person I am today. I could not thank you enough for the feedback, encouragement and many laughs we have had these past two years. I cannot wait to see where we all are years from now!
ACKNOWLEDGMENTS

I would like to acknowledge my thesis advisor, Dr. Kimberly Crosland, for taking the time and effort in guiding me these past two years and helping me become a better analyst. You have shown me that there should always be some laugher and light in our life and to always put a smile on people’s faces.

I would also like to acknowledge my thesis committee Dr. Catia Cividini-Motta and Dr. Kwang-Sun Blair for their feedback and assistance in this process.

Lastly, I would like to acknowledge Danielle Russo, Nicole Harris, Zoe Hay, Gabrielle Mondello, Jennifer Hodnett, Rachel Ayers and my lab members for their time and effort in assisting me with various aspects of my thesis. Thank you all for your support!
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ABSTRACT

As the number of students with developmental disabilities increases in schools (U.S. Department of Education, 2017a), so does the need for effective interventions within school settings. Both antecedent and consequence interventions have been conducted within schools in attempts to decrease maladaptive behaviors and increase appropriate behaviors in relation to academics. Providing choices and reinforcement have demonstrated empirical evidence that both interventions were successful in creating positive behavior change in students with emotional and behavioral disorders (EBD). This study compared the use of an antecedent-based intervention (i.e., activity choice) versus a consequence-based intervention (e.g., differential reinforcement without extinction) to determine which of the behavior management strategies produced a more effective behavior change for three students with or at risk of EBD. A non-concurrent multiple baseline across participants with an alternating treatments design was used. The feasibility for teachers to implement the interventions in their classrooms was also evaluated. Results indicated that both interventions were effective in increasing on-task behavior for all participants, although activity choice demonstrated a slightly higher effect for two of the three participants. Both interventions resulted in high levels of treatment fidelity by the teachers.
CHAPTER ONE:
INTRODUCTION

Choice versus Reinforcement: Which Produces Better Effects in Decreasing Disruptive Behavior for Students with or At Risk of Emotional and Behavioral Disorder?

Enacted in 1975, the Individuals with Disabilities Education Act (IDEA) mandated student’s ages 3-21 be provided with free and public school education (U.S. Department of Education, 2017a). According to the U.S. Department of Education (2017a), 14% of students attending public school settings receive special education services under IDEA with 5% of those students being children categorized with emotional disturbance. Emotional disturbance (categorized as emotional and behavioral disorder; EBD) is defined as demonstrating one or more of the following characteristics: a) inability to learn not due to intellectual, sensory or health factors, b) inability to build or maintain interpersonal relationships with others, c) inappropriate types of behavior/feelings under normal circumstances, d) pervasive mood of unhappiness or depression, and/or e) tendency to develop physical symptoms or fears associated with personal or school problems (U.S. Department of Education, 2017b). Common diagnoses under the category of EBD include attention deficit hyperactivity disorder, anxiety disorders, and oppositional defiant disorder (Ogundele, 2018).

Research has shown a relationship between academic deficits, problem behavior and EBD, in which students with EBD demonstrate lower academic progress, increase in learning
problems, higher engagement of maladaptive behaviors, and difficulty in developing and maintaining interpersonal relationships compared to their peers without disabilities (Cook, Rao, & Collins, 2017; Ogundele, 2018; Pierce, Reid, & Epstein, 2004). The manifestation of these behaviors in the classroom often results in the instructional emphasis on behavior management rather than academic instruction (Gagnon & Leone, 2006). In addition, teachers have reported that students with EBD are one the most challenging to teach (Cook et al., 2017) and often feel unprepared or have a lack of training to teach this population in their classrooms (Cook, 2002; Niesyn, 2009). This can create a disturbance in the classroom environment for the teacher, peers, and the students themselves. With this deficit, the need for evidence-based interventions is essential in helping students to be successful academically and behaviorally. Teachers can also benefit by more time being allocated to instructional time and less on addressing maladaptive behaviors.

Antecedent based interventions, which involve the altering of the individual’s environment (Crosland & Dunlap, 2012), have demonstrated positive results: evoking desired behavior, preventing undesirable behaviors, enhancing motivation, ease of implementation, and provide the ability to correct the environment by matching the environment to the individual’s skills, strengths, and preferences (Bambara & Kern, 2005; Crosland & Dunlap, 2012; Kern, Bambara, & Fogt, 2002). The use of antecedent interventions can allow for a structured classroom and assist in eliminating conditions within the environment that may evoke problem behavior. Various evidence-based antecedent strategies presented before a task (e.g., noncontingent praise, visual schedule, and student choice) have been used with individuals at risk or classified with EBD (Dufrene, Lestremau, & Zoder-Martell, 2014; Pence, 2016; Skerbetz & Kostewicz, 2013). Pence (2016) evaluated the use of a visual activity schedule (VAS) to
decrease the latency of four transitions within the classroom for a 7-year-old student. During baseline, the teacher provided repetitive prompts for the participant to transition from one activity to another and averaged 113s of latency time between teacher instruction to transition to engagement of the task. During the intervention phase, the teacher provided the VAS to the student that included pictures of the four activities in the correct daily order. Results demonstrated that latency levels decreased to an average of 73s. The transition behavior continued to have similar levels of responding when a reversal back to baseline and re-introduction was conducted.

A type of evidence-based antecedent intervention that has demonstrated effective behavior change is activity choice (Humenik, Curran, Luiselli, & Child, 2008; Rispoli et al., 2013; Ulke-Kurkcuoglu & Kircaali-Iftar, 2010). Choice has been used to increase responding for adaptive behaviors (e.g., engaging in school work) and decrease responding for maladaptive behaviors (e.g., destructive, escape-motivated behaviors) in the areas of vocational/ domestic activities, leisure/recreational/social activities, and academic activities across a wide variety of ages and individual characteristics (Kern et al., 1998). Several studies have found increases in task engagement and task completion, and decreases in disruptive behaviors when students were provided with a choice of academic tasks (Dunlap, Kern-Dunlap, Clarke, & Robbins, 1991; McComas, Hoch, Paone, & El-Roy, 2000). Regarding students with EBD, choice has resulted in positive outcomes in the classroom (Daly et al., 2006; Dunlap et al., 1994; Ramsey, Jolivette, Patterson, & Kennedy, 2010). For example, Skerbetz and Kostewicz (2013) used a reversal design to assess the use of choice versus no choice with five students with or at risk for EBD in a general education classroom to increase academic engagement and performance. During the no choice phase (i.e., baseline) teachers provided the participant with a predetermined activity.
Results indicated that on average the students were engaged 64-78% of the activity time, with two students demonstrating low levels of engagement from 0% and 18%. Within the choice phase, students were able to select one of the four assignments to complete (i.e., cloze sentences and multiple choice, sentence writing, fill-in-the-blank and yes/no, and word maps). Engagement levels increased for four (average of 89 to 100%) of the five participants when the choice condition was implemented and a reversal was conducted with the fifth participant demonstrating variability in responding across phases. A second dependent variable measured was minutes to complete assignment, where all participants completed assignments faster compared to baseline levels except for one whose completion time was unaffected by the condition change.

Overall, there is an increase in empirical support that antecedent interventions (e.g., activity choice) are effective in decreasing problem behaviors and increasing academic engagement. While antecedent strategies may be effective for some students, consequence-based strategies may be more effective for other students (Payne, Mancil, & Landers, 2005).

A behavioral principle demonstrated to provide significant positive behavior change for students is reinforcement (Beare, Severson, & Brandt, 2004; LeGray et al., 2013; Lucas, 2000). Reinforcement is a consequence-based behavior management strategy that contingent on a behavior, a stimulus is added or removed, increasing the likelihood of the behavior occurring again in the future (Miltenberger, 2008). Studies have evaluated reinforcement-based interventions such as token economy (Filcheck & McNeil, 2004; Martini-Scully, Bray, & Kehle, 2000), self-management (Peterson et al., 2006; Smith & Sugai, 2000), and group contingencies (Hansen & Lignugaris/Kraft, 2005) that have produced positive behavioral and academic results in the classroom. In regards to students with EBD, there have been only a few studies that used reinforcement-based interventions (Peterson et al., 2006; Umbreit, Ferro, Urso, & Upreti, 2006).
For example, a self-management strategy was examined by Smith and Sugai (2000) with a seventh-grade student with EBD. Researchers conducted a functional assessment, which discovered that the student engaged in classroom disruptive behaviors (i.e., talk-outs and off-task) for peer and teacher attention; therefore, a self-management intervention was implemented that allowed the student to monitor his behavior and learn the appropriate replacement behavior. The participant would monitor his work and engagement in the appropriate behavior (i.e., raising his hand and waiting for the teacher to provide attention) after each assignment by checking off “yes” or “no” in whether he did the assignment or not. Then the teacher assessed if she agreed with his self-evaluation and provided attention through praise statements if he did do the tasks. If he met his criteria for the day, points were accumulated which could be exchanged for computer time. Results showed that the self-management strategy was effective in decreasing disruptive behavior and increasing the appropriate behavior of raising his hand and waiting.

One of the most commonly used reinforcement interventions is differential reinforcement of alternative behavior (DRA; Cooper, Heron, & Heward, 2007). DRA is a procedure in which a targeted behavior, other than the targeted behavior, is reinforced while reinforcement for problem behavior is withheld, minimized, or reinforced on a different schedule (MacNaul & Neely, 2018). Studies have demonstrated the use of DRA producing significant effects in decreasing disruptive behaviors in the classroom and providing academic achievements (Athens & Vollmer, 2010; Wright-Gallo, Higbee, Reagon, & Davey, 2006). Typically, DRA procedures include an extinction component. The implementation of extinction can, at times, be unrealistic to implement in the classroom setting. Implementors must demonstrate high treatment integrity (Kunnavatana et al., 2018), requiring them to deliver reinforcement on each occasion of appropriate behavior and withdraw access to reinforcers contingent on each instance of
maladaptive behaviors. This can be a disadvantage for teachers due to other variables competing with the feasibility of perfect implementation: lack or absence of training on the intervention, the occurrence of an extinction burst, and the increased pressure faced for all students to demonstrate gains on standardized tests based on the guidelines of the No Child Left Behind Act requiring the teachers attention to be focused on all students (Davis, Fredrick, Alberto, & Gama, 2012; Mastropieri, Scruggs, & Graetz, 2003; Pierce et al., 2004). Therefore, it is important to assess behavior management strategies that can be feasible for teachers to conduct in their classroom without the use of an extinction component.

Research has evaluated the use of DRA without extinction in diverse settings and populations (Kelley, Lerman, & Van Camp, 2002; Kunnavatana et al., 2018). Lalli et al. (1999) compared various reinforcement schedules to decrease severe problem behavior and increase compliance with an instruction with five individuals in an inpatient hospital setting: differential (positive) reinforcement with extinction, differential (negative) reinforcement with extinction, differential (positive) reinforcement without extinction, differential (negative) reinforcement without extinction, and noncontingent escape. Based on the results, all participants benefitted from the differential (positive) reinforcement without extinction intervention when compared to the other conditions. In this condition, participants were provided an edible reinforcer contingent on compliance with an instruction. If target maladaptive behavior occurred, a break was provided (the same as baseline). A reversal was conducted with each participant that demonstrated positive experimental control with the changes in levels compared to baseline and other conditions. In addition, the reinforcement schedule was able to be thinned out for four of the five participants. This study provides support for the use of differential reinforcement without the use
of extinction and opens the possibility for other environments to use this form of intervention (e.g., classrooms).

Limited research has been conducted with the use of differential reinforcement without extinction in the classroom, specifically with the inclusion of participants with EBD. Davis and colleagues (2012) evaluated the use of DRA without extinction in the classroom with four males with EBD. Upon engagement in inappropriate behaviors, escape from the task was occurring in the classroom. Participants were taught alternative mands that were reinforced by escape from the task for 30 s plus access to a preferred activity. Inversely, if the student engaged in inappropriate behavior, the current consequence of escape was provided. Results indicated that reinforcement of the alternative behavior (appropriate mands to escape) was successful in decreasing maladaptive behaviors and increasing functional communication without the use of extinction. Consequently, for two of the participants, on-task behavior increased. With reinforcement providing promising results in many studies with other populations outside of EBD, it is imperative that more research be conducted to evaluate the use of reinforcement with students categorized with or at risk of EBD.

The purpose of this study was to extend the literature by providing empirical support for implementing evidence-based interventions for students with EBD by evaluating the feasibility of interventions that produce more efficient behavior reduction results. In addition, this study aimed to demonstrate the possibility of teachers implementing efficient behavior strategies in their classroom so more time can be focused on instructional time rather than addressing problem behavior. This study investigated the following questions: 1) Is activity choice or differential reinforcement without extinction more effective in decreasing problem behavior and increasing on-task behavior for students with or at risk of EBD?; 2) Do teachers prefer activity choice over
DRA without extinction?; 3) Will the absence of extinction result in a decrease of disruptive behaviors in the classroom setting?
CHAPTER TWO: 

METHOD

Participants

Participants included three students ages 6 to 10 years old, who attended a short-term alternative education school and two teachers. Students were enrolled through a referral process if the student was identified to have significant behavioral challenges that had not responded to targeted or intensive interventions of a multi-tiered system of support.

To meet the inclusion criteria, students had to engage in disruptive behavior(s) to others in the classroom, were classified with or at-risk of an emotional and behavioral disorder (EBD), and were able to make choices (as reported by teachers and assessed by observation of student’s response when a choice was presented to them). At-risk was defined as an individual exhibiting behavioral characteristics of a child with EBD, such as noncompliance and defiance based on teacher report (Lane, Wehby, & Barton-Arwood, 2005). Students were excluded from the study if they engaged in high intensity behaviors, including self-injurious behavior, aggression that resulted in injury to others, and high intensity disruptions (such as throwing large items that could cause serious injury). Students were recruited by having the teacher and the district’s behavior analyst nominate students who engaged in disruptive behaviors during various times and/or specific activities during the school day. For participation, it was required that students engage in problem behavior for at least 30% of the observation period. Parental consent was obtained for all students and verbal assent was obtained for students over the age of seven.
Jenny was an African-American, 6-year-old female in the 1st grade. According to academic cumulative records, she was diagnosed with ADHD and took Ritalin (10 mg/daily) prior to coming to school. Academic records provided evidence that she was below grade level based on scoring; “low emerging kindergarten level” in math and reading based on iReady scores and “below level” on report cards from the 2018–2019 and beginning of 2019 school year. She was nominated due to her teacher and the district’s behavior analyst’s report of observing her calling out, wandering around the room, and engaging in off-topic conversations.

Sophia was a White, 10-year-old female in the 5th grade. She was diagnosed with ADHD. Throughout the study she received speech therapy and occupational therapy once a week for 30 min each. Sophia was nominated due to teacher report that she would often look away or delay in engaging in a task presented to her.

Nicholas was an African-American, 6-year-old male in the 1st grade. He was diagnosed with ADHD and Post-Traumatic Stress Disorder. Nicholas was taking three medications during the study including Ritalin (10 mg 3x/day), Intuniv (4 mg/daily), and Abilify (10 mg/daily). He received speech therapy once a week for 30 min. Nicholas was nominated for the study due to him engaging in disruptive behaviors in the classroom and towards other individuals including calling out, out of seat, talking to others, and manipulating items not for their intended use.

Two teachers participated in the study. Recruiting took place by the district behavior analyst setting up a meeting with all teachers in the unit. The primary researcher facilitated the meeting and explained the research project. Written consent was obtained for two teachers that agreed to participate. Sandy was a White female, teaching for over 10 years, and she completed an M.A. in Elementary Education. Her classroom was comprised of eight students, with a full-time aide and part-time aides. A minimum of two teaching aides were always in the classroom.
during observation periods. The aides helped with prompting the student to do their work and assisted with managing challenging behaviors. Sandy implemented the interventions with Jenny and Sophia who were students in her classroom. Patrick was an African-American male, teaching for 5 years, and he completed a B.A. in Exercise Science with a minor in Psychology. His classroom was always comprised of six students with at least two TAs in the classroom. Patrick implemented the interventions with Nicholas.

**Setting and Materials**

Baseline and intervention sessions occurred in the students’ classrooms. Nicholas originally started in Ms. Sandy’s classroom then was transitioned to Mr. Patrick’s classroom after session 7; therefore, baseline sessions were continued to ensure there was no change in target behaviors after the classroom change. Materials consisted of data sheets (Appendix A), the Countee© app for data collection, a random number generator app, instructional materials provided by the teacher, and preferred items identified in the preference assessment (i.e., stickers, gummies, chocolates, coloring book).

**Experimental Design**

A non-concurrent multiple baseline across participants with an alternating treatments design in which the intervention phase was implemented to assess the effects of activity choice versus differential reinforcement without extinction on disruptive behavior. Phases included baseline, intervention, and teacher choice.

**Target Behaviors**

The dependent variables that were measured for all participants were off-task behavior and on-task behavior. Off-task was defined as any instance of the student engaging in behaviors outside of the assigned task. Individualized operational definitions for each student including
examples are displayed in Table 1. All Students engaged in disruptive behavior(s) that interfered with the ability for the instructor to teach and/or students to learn (e.g., out of seat, talking to others, calling out, verbal protests). On-task was defined as the student engaging in the assigned task provided by the instructor. Examples included sitting in his/her seat, raising hand, writing on the assigned task, attending to the instructor, reading a book.

Table 1. Operational Definitions of Off-task Behavior for Each Participant

<table>
<thead>
<tr>
<th></th>
<th>Off-task Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Off-task was defined as any instance of the student engaging in behaviors outside of the assigned task including but not limited to …</td>
</tr>
<tr>
<td>Jenny</td>
<td>Talking to others, walking around, out of seat, manipulating items not for its intended, and looking around the room purposes, putting head down</td>
</tr>
<tr>
<td>Sophia</td>
<td>Putting head down on desk/arm, drawing on paper/desk, scribbling over the assigned questions, stating &quot;no&quot;, rolling eyes, grunting, and making animal sounds</td>
</tr>
<tr>
<td>Nicholas</td>
<td>Calling out, walking around the room, out of seat, manipulating items not for its intended use, verbal protest, and talking to others.</td>
</tr>
</tbody>
</table>

Note. Operational definitions for each participant used across all phases.

Data Collection

All sessions lasted up to 10 min (ranging from 4 min and 17 s to 10 min, with the average session lasting 8 min and 56 s). Duration of the session depended on the task provided to the student and whether they completed the task prior to the end of the 10 min session time. No more than four sessions were conducted on the same day for each student. Students were given a minimum of a 3-min break in between sessions.

Trained data collectors recorded on-task behavior using duration. Since off-task behavior was the inverse of on-task behavior, a separate data record was not needed. The percentage of
engagement in on-task behavior was recorded via the Countee© app. Percentages were calculated by adding the number of seconds of on-task divided by the total session time in seconds multiplied by 100. Off-task behavior was reported as the inverse of on-task percentage.

**Interobserver Agreement (IOA)**

The primary researcher trained research assistants to collect data prior to observing sessions. Trainings occurred outside of sessions via video and in person. A mock video was used for individuals to practice collecting data. The primary researcher collected data using the same video, then compared results with the research assistants. After video training, the primary researcher conducted an in-person training by describing the participants’ target behaviors, data collection method, and a test trial was conducted to familiarize the assistant with collecting data using the app. In addition, the primary researcher and research assistant observed the student and identified behaviors that would or would not count as off-task. An 80% or higher agreement score was needed between the primary investigator and research assistant for the mock video and in person training before the research assistant could start collecting data for the study. The researcher and a second observer collected data simultaneously for an average of 37.6% of baseline sessions and an average of 44.7% of intervention sessions and 100% of the teacher choice phase, ranging from 30% to 100% of sessions across phases. The percentage of IOA was calculated by the lowest sum of seconds of on-task behavior from one observer divided by the highest sum of seconds of the second observer multiplied by 100. IOA for Jenny averaged 95.7% (range = 92% – 99.6%) for on-task behavior and was calculated for 33% of baseline sessions and 42.8% of intervention sessions. IOA for Sophia averaged 94.9% (range = 78% – 100%) for on-task behavior and was calculated for 50% of baseline, 58.3% of intervention, and 100% of teacher choice sessions. IOA for Nicholas averaged 99.3% (range = 93% – 100%) for on-task
behavior and was calculated for 30% of baseline, 33% of intervention, and 100% of teacher choice sessions. Table 2 displays the specific IOA data for each condition for each participant.

Table 2. Mean Interobserver Agreement of Student Behavior

<table>
<thead>
<tr>
<th>Condition</th>
<th>Sophia</th>
<th>Jenny</th>
<th>Nicholas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% BL AC DRA</td>
<td>% BL AC DRA</td>
<td>% BL AC DRA</td>
</tr>
<tr>
<td>Baseline</td>
<td>33 92 98 50 30 96</td>
<td>89.8 (78 – 98.5)</td>
<td>96 (93 – 98.5)</td>
</tr>
<tr>
<td>Intervention Evaluation</td>
<td>42.8 98.5 96.7 58.3 99 98</td>
<td>94.7 (89 – 99.5)</td>
<td>99.5 (99 – 100)</td>
</tr>
<tr>
<td>Teacher Choice</td>
<td>- - - - 100</td>
<td>- - 94.7</td>
<td>100 - -</td>
</tr>
<tr>
<td>Mean</td>
<td>37.9 92 98.5 96.7</td>
<td>69.4 89.8 99 96.4</td>
<td>37.7 96 98.3 99</td>
</tr>
</tbody>
</table>

Note. The average percentage of IOA assessed per student and condition is reported in the table. %= Percentage of sessions assessed; BL = Baseline; AC= Activity Choice; DRA= Differential Reinforcement without extinction.

**Treatment Integrity**

The primary researcher and trained research assistants collected treatment integrity data for an average of 47.6% of baseline sessions and 100% of intervention sessions across all participants; and 100% of the teacher choice phase for two participants (i.e., Sophia and Nicholas). Treatment integrity was reported as the percentage of correct steps completed on the task list (See Appendix B for task analyses for baseline and intervention sessions). It was calculated by dividing the number of completed steps over the total number of steps in the task analysis. If the teacher scored below an 80% during the intervention phase, a booster BST
session would have been conducted, however, treatment integrity never fell below 80% for either teacher. Corrective feedback (i.e., telling the teacher what they did well during the session and what step(s) they implemented incorrectly and how to implement those steps correctly next time) was provided to the teacher right after the termination of the session if he/she scored under 100% but a minimum of 80%.

Implementation fidelity for Sandy was 100% during the baseline phase, 100% for activity choice and 98.3% for DRA without extinction. Corrective feedback was provided to Sandy after session 11 for Sophia as she scored an 80%. Overall, implementation fidelity was high for Sandy across both participants. Patrick’s implementation fidelity was 100% during the baseline phase, 100% for activity choice, and an average of 92% for DRA without extinction. Corrective feedback was also provided to Patrick after session 11 and 18 for Nicholas after he missed step 2 (i.e., providing a preference assessment) and instead provided the predetermined task prior to providing the preference assessment.

**Social Validity**

A social validity questionnaire was conducted with participants and their teacher(s) at the end of the study (Appendix C). The questionnaire collected the opinions of teachers and students’ preference, likeability, and feasibility of the interventions. As well, the effect of the intervention on students’ problem behaviors was assessed using the questionnaire. The questionnaire for the teachers included a 3-point Likert type scale (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree* 5 = *Strongly Agree*). The statements in the questionnaire included which intervention the teacher preferred, the ease of implementation of each intervention, and whether the teacher would consider implementing one or both interventions in their classroom.
A student version of the questionnaire was provided to the participants (Appendix D). The questionnaire included a 3-point Likert type scale \(1 = \text{sad face}, \ 2 = \text{neutral face}, \ 3 = \text{happy face}\). Statements included: I liked choosing what I got to work on, I liked getting something after doing my work, I behaved better in class.

**Functional Assessment**

A functional assessment was conducted for each participant prior to conducting baseline or intervention sessions. The primary researcher met with each teacher for approximately 30 mins to conduct the assessment for each student before the beginning of the class.

**Indirect assessments.** Two different indirect assessments with the participants’ teacher were completed. The Open-Ended Functional Assessment Interview (Hanley, 2009) was used to identify students’ target behaviors, preferred items, antecedents that evoked problem behavior, consequences provided contingent on problem behavior, and provide information on the possible function of behaviors (Appendix E). The Functional Assessment Screening Tool (FAST) was used to assist in developing a hypothesis for the function of the targeted problem behavior (Appendix F). The principal investigator facilitated the completion of the FAST with each teacher, as it was their first time completing this form.

**Direct observations.** Based on the information collected from the indirect assessment, the primary researcher observed the student during times and activities that they engaged in problem behaviors most frequently as reported by the teacher. In addition, the researcher developed an operational definition of the target problem behavior based on the observations. Narrative ABC recording was used as the observation method. Three direct observations were conducted with each student. For Nicholas and Jenny, the principal investigator observed the
students for three 15 min observation times. For Sophia, two 15 min and one 25 min direct observation times were conducted.

**Preference Assessment**

Prior to each DRA intervention session, a brief one trial preference assessment was conducted by the teacher with each student. Each preference assessment included three items. Items used in the assessment were identified by asking the student about things they liked and from teacher report during the Open-Ended FA Interview (Hanley, 2009). All three items were lined up and the student was asked which item he/she wanted to earn at the end of completing the task or 10 min session. The item chosen was the one that the student earned upon work completion.

For Jenny, scented stickers, gummies, and stars drawn on her completed assignment were identified as preferred items. The stickers were consistent with teacher report during the interview. Stickers and gummies were the highest selected items (Gummies = 4, Stickers = 3) with Jenny not selecting the stars in any trial. Regular smiley face stickers, scented stickers, and Hershey’s Kisses® were reported by Sophia and her teacher to be preferred. During each trial, Sophia was observed selecting chocolate. As for Nicholas, he was provided with the option to choose between stickers, Hershey’s Kit Kat®, and drawing in a coloring book. He too selected the edible, Kit Kat®, for every session.

**Procedures**

All sessions were conducted in the classroom during typical academic activities. Following baseline, participants were introduced to two intervention conditions: activity choice and differential reinforcement without extinction. The intervention conditions were randomly chosen using a random generator with no more than three of the same condition run
consecutively. No more than four sessions were conducted per day. Assignments provided to students during all sessions were similar and related to the class period in which the teacher indicated was most problematic. For example, if math time was selected, similar worksheets were used during all phases of the study. All assignments presented were estimated to be completed within a 10 min time frame; however, there were some assignments that did take slightly longer due to the complexity of the work.

**Baseline.** During the baseline phase, the teacher provided the student with an assignment and provided current consequences that occurred in the classroom (e.g., prompting multiple times to complete the task, allowing not to complete the task, reprimanding or giving other forms of attention). The teacher was instructed to conduct class and interactions with students as he/she normally would. Participants were not provided with a choice in the activity they completed or provided with additional reinforcers for completing tasks.

**Teacher training.** The researcher taught teachers of the interventions using a behavior skills training (BST) format. Trainings were conducted by the primary investigator after baseline sessions and prior to implementation of both intervention conditions. In the training, the researcher explained the purpose and instruction of each intervention, modeled the interventions, had the teacher rehearse, and provided feedback immediately on what the teacher did well and what they could improve on for the next opportunity (if needed). Training was terminated once the teacher demonstrated proficiency (i.e., completed all steps within the task analysis at 100% accuracy) across two role-plays. BST booster sessions were available per teacher request and/or if they scored under 80% in treatment implementation. Duration data was recorded from the onset to the offset of the training. On average, it took 4 min and 6 s to train the teachers on the
implementation of activity choice and 4 min and 41 s to train teachers on the implementation of
differential reinforcement without extinction.

**Activity choice.** In the choice condition, the student had the opportunity to choose the assignment that he/she wanted to complete within the session (i.e., choose between two or three types of math worksheets). Prior to the sessions, the teacher had two or three different choices across activities or within the activity. Choices included picking between two math worksheets, completing math or language arts on iReady, doing the top or bottom half of the worksheet, finishing a science project on paper or finishing the project on the computer. If needed, the principal investigator assisted the teacher with coming up with possible choices. Assignments were similar in difficulty to ensure that selection was not influenced due to easiness of the assignment. The teacher showed the available assignments to the student and provided an SD similar to, “Choose the one that you want to complete.” Once the student made a choice, the teacher gave the selected assignment to the student, and the session timer was started. The teacher provided prompts and consequences the same as in the baseline condition (i.e., the teacher was not instructed to interact differently with the student compared to baseline). If the student did not make a choice, the teacher represented the SD again. If the student still did not make a choice, the teacher chose for the student and the session began. There was one instance in which the teacher had to represent the choice options a second time for Nicholas; however, none of the teachers had to choose an activity for the participants. Once the 10 min timer went off or the student completed the task prior to 10 min, the session was completed. A minimum of a 3 min break was provided between sessions for each participant.

**Differential reinforcement without extinction.** In the DRA without extinction condition, the teacher conducted a brief preference assessment (as described earlier) for the
student to determine which item they would earn after completing a task or at the end of 10 min. Preference assessments were conducted prior to the beginning of each session for all participants. The task the student completed was an already assigned task that the class was to complete and similar to those completed in baseline and during the choice condition. Task difficulty was consistent across all sessions. The teacher provided the SD, “Once you complete [the task] or are working at the end of 10 min, you can have [preferred item].” Contingent on completion of the task or engagement of on-task behavior at the end of 10 min, the teacher provided the student with access to the preferred item. Accuracy of the task was not counted towards the criteria for access to the item. If the student was engaging in off-task behavior at the end of 10 min, the student did not receive the preferred item. There were no sessions in which this occurred.

**Teacher choice.** In this phase, the teacher was provided with the opportunity to select which intervention they wanted to implement with the student. The principal investigator told the teacher that they could choose either activity choice or DRA without extinction to implement with the student and there were no limits on the consecutive number of times the teacher could select the same intervention. The same procedures were used for each intervention.
CHAPTER THREE:

RESULTS

Functional Assessment

Prior to the implementation of baseline and intervention sessions, the principal investigator analyzed the results from the indirect assessments conducted with each teacher based on the student in their classroom. Results from the FAST are displayed in Figure 1. Based on the results of the teacher interviews, completion of the FAST, and direct observations conducted by the primary investigator, Jenny’s off-task behavior was hypothesized to be maintained by escape and attention. The teacher reported that Jenny had difficulty during reading and math. Usually if there was an abundance of work presented, attention was withdrawn, or when Jenny was presented with a non-preferred activity; Jenny would engage in off-task behaviors including talking to others, manipulating objects not for their intended use, out of her seat, and times walking around the classroom. Consequences included redirection back to the task, provided with a break, peers continuing to talk to her, and adult attention by talking to her about what she was upset about or contributing to the off-task topic. FAST results received high scores for social reinforcement (attention) and social reinforcement (escape) with a total of 5, which indicated they were likely maintaining variables for problem behavior.

Sophia’s off-task behavior was hypothesized to be escape-maintained. While interviewing the teacher, it was reported that Sophia had difficulty during the first half of the school day prior to lunch. When presented with a non-preferred task or given a correction, she would engage in noncompliance that was described as “shutting down”, head down on desk,
drawing over her work; and disruption which was described as acting like an animal (i.e., cat or dog), hissing, crawling on the floor, and calling out. The disruptive behavior of acting like an animal was not observed during observations but was kept within her off-task definition. It was observed and reported that contingent on engagement in the previous behaviors, Sophia was reminded of the expectations, threatened for free-time to be removed if she did not complete work, and attention withdrawn from the behavior. Results from the FAST correlated with analog reports and observations, with Sophia scoring highest in the social reinforcement (escape) function.

Direct observations, teacher reports, and FAST results agreed for Nicholas’ off-task behavior, which was hypothesized as multifunctional (i.e., escape and attention maintained). The teacher reported that maladaptive behaviors occurred throughout the day during any academic times, though reading was the most problematic time for the week prior to the interview. This could have been due to an increase in reading level. It was observed that when presented with a non-preferred task, things did not go the way he planned, or he made a mistake on his assignment, he would engage in disruptions that included going out of area, calling out, walking around, manipulating items not for their intended use, and talking to others. Common consequences included the adults providing attention for the behavior(s), prompting a break, being taken out of the classroom for a walk, or changing the task Nicholas was working on. The teacher indicated that Nicholas’ behavior occurred in bursts and would be impulsive in his actions. A major setting event reported for engagement in problem behavior included the absence of medication.
**Intervention Evaluation**

Figure 2 presents the data for the percentage of on-task behavior during baseline and intervention phases across participants. Two of the three participants engaged in low levels of on-task behavior during academic instructions in baseline. Sophia initially demonstrated high engagement in on-task behavior but this decreased as sessions continued. Overall, both activity choice and DRA without extinction were effective in increasing on-task behavior for all participants.

![FAST Results](image)

*Figure 1.* Results from Functional Assessment Screening Tool provided for each participant. Solid black bars represent Social reinforcement (Escape), white tiled bars represent social reinforcement (attention), solid gray bars represent social reinforcement (access), white polka-dotted bars represent automatic reinforcement (sensory stimulation), and dashes bars represent automatic reinforcement (pain attenuation).
participants. Activity choice demonstrated a slightly better effect for two of the participants (Sophia and Nicholas) when compared to DRA without extinction.

During baseline, Jenny engaged in low levels of on-task behavior. On average, on-task behavior was observed 24.8% of sessions, (range = 16-38.5%). Upon implementation of both interventions, there was an immediate effect. For activity choice, the percentage of on-task behavior increased to 84.3% on average (range = 74-96%). There was some overlap when DRA without extinction was implemented and variability throughout that condition. Jenny engaged in an average of on-task behavior 83.3% of the time (range = 61–100%). There were no overlapping data points for on-task behavior between baseline and intervention.

Sophia engaged in high levels of on-task behavior for four baseline sessions ranging from 71% – 98%. In sessions 6 thru 8, she had an increase in off-task behaviors such as putting her head down, looking around the room, and manipulating the writing materials in an inappropriate manner (e.g., tapping/rolling pencil, twirling pencil) with on-task levels decreasing to below 56%. The overall average for on-task behavior during baseline was 70%. Once intervention was implemented for Sophia, the activity choice condition resulted in a substantial increase in on-task behavior and remained at high levels throughout the phase (87.1%; range = 61.8 % - 98.7%) with the exception of the second to last data point that dropped slightly. As for DRA without extinction, there was variability in on-task performance. Engagement fluctuated within 45.5% - 97.3% and no stable pattern was established.

Nicholas demonstrated some variability (range = 31% - 92%) in on-task performance during baseline, averaging 51.5%. After session 7, Nicholas was moved from Sandy’s to Patrick’s classroom due to an increase in verbal aggression between Nicholas and some other students in the classroom and the academic team believed a new classroom would be a better environment.
for him. Baseline data was continued with the change in teacher and classroom, with on-task decreasing back to low levels and data stabilized. There was a substantial increase in on-task levels upon implementation of both interventions. Activity choice was a bit more effective in increasing on-task behavior ($M = 88.5\%; \text{ range } = 85\% - 93.5\%)$ with data remaining stable with the changes in conditions. There was a slight decreasing trend for the implementation of DRA without extinction; however, data still showed higher levels when compared to baseline ($M = 82.5\%; \text{ range } = 74\% - 95\%)$.

**Teacher Choice**

When Sandy was provided a choice to select one of the interventions, she chose DRA without extinction to implement with Sophia across two trials. On-task behavior showed a slight increase in level compared to responding within the same condition in the previous phase. Responding averaged 93\% (range = 88.2\% - 97.8\%). Patrick chose to implement activity choice with Nicholas and similarly high levels of on-task behavior occurred during this session. This phase was not conducted with Jenny due to her transitioning back to her regular school.
Figure 2. Percentage of on-task behavior across participants. Solid squares represent activity choice condition. Open triangles represent DRA without extinction condition. Asterisk on Nicholas’ graph represents change in classroom and teacher during baseline phase. Teacher choice was not implemented with Jenny due to participant transferring schools.
**Social Validity**

Results indicated high preference, likeability, and feasibility of both interventions across teachers and students. Both teachers rated from a scale of 4 (i.e., agree) and 5 (i.e., strongly agree) in regards to liking the interventions, future implementation within their classroom, and recommending both to others (Figure 3). When asked which intervention they preferred, Sandy said she liked DRA without extinction due to the feasibility and effectiveness of the intervention. Her response correlated with her choice of implementing DRA without extinction in the teacher choice phase. Patrick reported he preferred activity choice due to the type of classroom he had, passing out extra items may start problem behaviors in the students not receiving the preferred item.

Sophia and Nicholas both reported a 3 (i.e., agree) in regards to liking to choose what they got to work on and getting something after completing their work (Figure 4). When asked why they liked getting to have a choice on the task, both responded on the easiness and difficulty of the task influencing their choice. In respect to getting a preferred item after completing a task, Sophia liked that she got a reward as it demonstrated to her that she wasn’t doing the work for nothing. Nicholas reported he liked the way the stickers looked. However, when a preference assessment was conducted with Nicholas prior to each DRA session, he chose the chocolate every single time. A social validity questionnaire was not conducted with Jenny due to her transfer back to her regular school.
Table 3. Teacher’s Social Validity Ratings

<table>
<thead>
<tr>
<th></th>
<th>Sandy</th>
<th>Patrick</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Providing choices was easy to implement.</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2. I would implement choices in my classroom.</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>3. I would recommend implementing choices to others.</td>
<td>4</td>
<td>5</td>
<td>4.5</td>
</tr>
<tr>
<td>4. Providing reinforcement was easy to implement.</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>5. I would implement reinforcement in my classroom.</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>6. I would recommend implementing reinforcement to others.</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>7. I saw a positive change in my student’s behavior.</td>
<td>5</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td>8. I had a positive experience participating in this study.</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>9. Which procedure did you prefer (activity choice or differential reinforcement without extinction) and why?</td>
<td>“DRA w/out EXT because I found it easier to implement and seemed to be more effective in impacting behaviors.”</td>
<td>“Activity choice because of the type of classroom setting, giving out treats to a specific person may start problem behavior in other students in the classroom.”</td>
<td></td>
</tr>
</tbody>
</table>

Note. 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree.
Table 4. Student’s Social Validity Ratings

<table>
<thead>
<tr>
<th></th>
<th>Sophia</th>
<th>Nicholas</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I liked choosing what I got to work on.</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2. What did you like about getting a choice?</td>
<td>“That I could do the hard work first.”</td>
<td>“It [the work] was easier to do.”</td>
<td></td>
</tr>
<tr>
<td>3. I liked getting something after doing my work.</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4. What did you like about getting something after doing your work?</td>
<td>“That when I did my work it wasn’t just for nothing.”</td>
<td>“I liked the way the stickers looked.”</td>
<td></td>
</tr>
</tbody>
</table>

Note. 1 = disagree, 2 = neutral, 3 = agree. Social validity was not conducted with Jenny due to her leaving school.
CHAPTER FOUR:

DISCUSSION

This study examined the implementation of activity choice and DRA without extinction to determine which of these interventions would be more effective in increasing on-task behavior for three students with or at risk of EBD. In addition, the study sought to determine which intervention the teacher preferred implementing, and further, to evaluate if the absence of extinction would result in improvement in on-task behavior for students. While the researcher did plan to implement an activity choice and differential reinforcement without extinction package if behavior did not significantly decrease, it was not necessary. The results indicated that both interventions were successful in increasing on-task behavior, which is consistent with the literature (Athens & Vollmer, 2010; Dunlap et al., 1991; McComas, Hoch, Paone, & El-Roy, 2000). Activity choice appeared to produce slightly better improvements in on-task behavior for two of the students. In addition to the interventions being effective, duration of implementing the interventions showed that in all it took an average of 4.3 weeks (range = 4 to 5 weeks) for significant effects across participants with an average of 2 sessions conducted per intervention day (range = 1 – 3 sessions per intervention day) for both activity choice and DRA without extinction.

The current study adds to the literature by providing support for interventions that are effective and easy to implement in the classroom. To begin, data on teacher training showed both interventions took very little time to teach and only needed 5 mins of the teacher’s time (choice: average of 4 min 6 s; DRA average: 4 min 41 s). Given the short duration of training needed, this
might result in improvements in teacher fidelity (i.e., the interventions had only a few steps that were not complex) and perhaps greater social validity. Both teachers had high fidelity throughout the intervention phase implementing both interventions, demonstrating that after training teachers could implement these interventions independently and consistently.

By developing a hypothesis related to the function of problem behavior, it might be possible to examine if there is a possible relationship between positive behavioral changes and the function of problem behavior. The functional assessment was implemented to simulate the Romanuik and colleagues (2002) study, which assessed the use of activity choice for students with attention-maintained behaviors versus escape-maintained behaviors. In the Romanuik study, results demonstrated that activity choice was effective in decreasing problem behavior for students with escape-maintained behaviors. Though hypothetical functions were developed from the functional assessments in comparison to an analogue functional analysis for all participants, the increase in on-task behavior during the activity choice condition provided empirical support that activity choice was effective for escape-maintained behaviors. Students were able to choose the task they wanted to complete, increasing the abolishing operation for off-task behavior and decreasing the likelihood of the behavior occurring during the presentation of an academic task.

With limited research on DRA without extinction in the classroom, this study showed that the component of extinction might not always be necessary, consistent with the results in Davis and colleagues (2012). Students in this study showed increases in on-task behavior when the alternative behavior was reinforced. For extinction to be effective it must be implemented consistently and that is not an easy task for teachers to successfully accomplish with so many other competing variables within the classroom setting. Therefore, this intervention might be a viable option for teachers to implement with students in their classroom that does not consist of a
high response effort. In addition, this study provides empirical support for either choice or DRA without extinction with students with or at-risk of EBD, expanding the availability of effective interventions to a diverse set of students.

In regards to the variability of Sophia’s responding to the DRA intervention, no reports of any outside influences (e.g., medication change, family event) were provided that might have contributed to the inconsistency. A possible reason could be due to the preferred item not being functionally equivalent as a consequence. Sophia’s off-task hypothetical function based on the functional assessments and observations was escape, however, in the DRA condition she received a preferred item contingent on on-task behavior. When she earned the preferred item, Sophia chose chocolate five out of the five opportunities. She was observed keeping the chocolate at her desk and not consuming the item. The teacher (Sandy) reported that she would usually eat it during lunch or take the chocolate home. The variance in on-task behavior during this condition might suggest the importance of providing a reinforcer based on the hypothetical function, such as allowing for a break instead of a preferred item.

Higher levels of on-task behavior were observed for two of the three students (i.e., Jenny and Nicholas) when completing the assigned tasks in a one-on-one setting with the teacher. This provided an increase in opportunities for the teacher to provide assistance, attention, and prompt the student back to the task, which may have influenced engagement levels. This trend was observed across all phases and conditions for these two students. For example, Nicholas was on-task over 90% of the time during various 1-on-1 academic tasks (i.e., reading a book, completing a math worksheet, and finishing a grammar worksheet) during parts of sessions in baseline and intervention conditions. Even though there was high academic performance with this form of instruction, it is important to note that high levels of performance were consistent across small
group and whole group instructions when the intervention conditions were in place indicating that both interventions may be suitable for varying classroom sizes and teacher attention.

When the teachers chose the intervention in the choice phase similar results were observed as on-task behavior remained high for both Sophia and Nicholas. Choice phase data was not obtained for Jenny as she was moved back to a regular general education classroom due to improvements in her behavior. Prior to the second DRA trial, Sandy mentioned to the principal investigator that she was choosing that intervention due to the activity the class was doing next (i.e., whole group reading on the carpet) and it was easier to provide her with items already there than thinking of choices to present Sophia. Situations like this may influence teachers’ selection of implementing interventions that are feasible and low in response effort. More data is needed to further evaluate the effect of teacher choice and student responding.

**Limitations**

One limitation of the study was the classroom adult to student ratio. In Sandy’s classroom, there were two adults (one teacher, one aide and sometimes two) and eight students; establishing a 1:4 teacher to student ratio. In Patrick’s classroom there was a 1:2 ratio, three adults and six students. This allowed for an increase in opportunities for the adult to prompt students to their task, attend to the student, and work in one-on-one or small groups as compared to a general education classroom that is typically compromised of a much higher ratio of students to teachers. This might have influenced the results for sessions in which the students were on-task for higher levels due to being able to work with the teachers individually.

Another limitation of the study was that functional analyses were not conducted in the classroom, due to the school’s district limitations on functional analyses’ being conducted in the schools during classroom time. Though a hypothetical function was established through the
functional assessments and observations, there were no manipulations conducted to establish a clear function. Therefore, it is unknown if a functionally-equivalent reinforcer was identified for each student in the DRA without extinction condition as described earlier for Sophia.

Differential reinforcement of alternative behavior without extinction is programmed to be used as a consequence-based intervention. In this study, the step 2 of the task analysis included an antecedent component (i.e., conduct a preference assessment), which involved the teacher providing a choice between preferred items before the presentation of the demand. This could be a limitation as it is less clear if providing the choice behavior may have influenced the following on-task behavior instead of access to the preferred item.

**Future Direction**

Future studies should replicate this study evaluating class size. As this study was implemented with students in a modified classroom, other studies could be conducted with a larger population including a traditional general education classroom in which the teacher to student ratio is higher. Assessing both the feasibility of implementing each intervention and the fidelity of implementation when the teacher to student ratio is higher would be pertinent to determining the effectiveness of the interventions. As mentioned by a teacher, DRA was chosen due to the feasibility of implementation in the classroom. It is not known if the increase in students within the classroom would provide similar reasons for choosing this intervention.

Another future direction might be to conduct a student choice phase. As this study and previous studies have evaluated, choice plays an essential role in the increase of appropriate behaviors within various settings, including classroom settings. A study could assess if student choice on the intervention has any significant effect on the increase or maintenance of academic
behavior. By providing a choice, it could enhance buy-in from the student and increase motivation for academic engagement.
REFERENCES


Appendix A: Data Sheet (Duration)

Data Sheet (Duration)

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<th>IOA</th>
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<tr>
<td>Condition:</td>
<td>Observer 1:</td>
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<tr>
<td>Baseline</td>
<td>Observer 2:</td>
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<tr>
<td>Choice</td>
<td>IOA score:</td>
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<td>Reinforcement</td>
<td>Notes:</td>
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<tr>
<td>Observer:</td>
<td></td>
</tr>
<tr>
<td>Target Problem Bx:</td>
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<td>Task:</td>
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<td>Total Duration (PBx):</td>
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<tr>
<td>Total Duration (Session):</td>
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<td>% of PBx:</td>
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<table>
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</thead>
<tbody>
<tr>
<td>Condition:</td>
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<td>Observer:</td>
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<tr>
<td>Target Problem Bx:</td>
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<td>Task:</td>
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<td>Total Duration (PBx):</td>
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<tr>
<td>Total Duration (Session):</td>
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</tr>
<tr>
<td>% of PBx:</td>
<td></td>
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</table>

<table>
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<tbody>
<tr>
<td>Condition:</td>
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<td>Total Duration (Session):</td>
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<tr>
<td>% of PBx:</td>
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</table>
Appendix B: Task Analysis for Treatment Integrity

Task Analysis for Treatment Integrity

Participant: ____________________________  Teacher: _____________________________
Date: __________________________________ Observers: ____________________________
Condition: ________________________________________________________________

Directions: Observe the implementor while he or she is conducting a session. Score a + if the implementor engages in the correct step. Score a – if the implementor missed the step or was incorrect on implementation. Score N/A if the step is non-applicable. Total the number of correct steps completed and divide by the number of steps on the task analysis.

Baseline

<table>
<thead>
<tr>
<th>Steps</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teacher has necessary materials prior to starting session.</td>
<td></td>
</tr>
<tr>
<td>2. Teacher gives assignment to student.</td>
<td></td>
</tr>
<tr>
<td>3. Does not provide activity choice</td>
<td></td>
</tr>
<tr>
<td>4. Does not provide DRA</td>
<td></td>
</tr>
<tr>
<td>5. Provides natural consequence</td>
<td></td>
</tr>
</tbody>
</table>

\[
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\]

Activity Choice

<table>
<thead>
<tr>
<th>Steps</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teacher has necessary materials prior to starting session.</td>
<td></td>
</tr>
<tr>
<td>2. Teacher shows student the array with two-three choices.</td>
<td></td>
</tr>
<tr>
<td>3. Gives an SD similar to, “Choose the one that you want to complete.”</td>
<td></td>
</tr>
<tr>
<td>4. Immediately gives chosen task to student.</td>
<td></td>
</tr>
<tr>
<td>5. Represents SD (if assignment not chosen) (if applicable)</td>
<td></td>
</tr>
<tr>
<td>6. Teacher selects task after second presentation of SD (if applicable)</td>
<td></td>
</tr>
</tbody>
</table>
7. Upon completion of the task OR end of 10-min, teacher provides current consequence.

<table>
<thead>
<tr>
<th>% of TI</th>
<th>/ 5 = %</th>
</tr>
</thead>
</table>

**DRA w/o EXT**

<table>
<thead>
<tr>
<th>Steps</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Teacher has necessary materials prior to starting session.</td>
<td></td>
</tr>
<tr>
<td>2. Provides a preference assessment.</td>
<td></td>
</tr>
<tr>
<td>3. Teacher provides predetermined task to student.</td>
<td></td>
</tr>
<tr>
<td>4. Gives SD similar to, “Once you complete [task] or in 10-mins, you can have [preferred item].”</td>
<td></td>
</tr>
<tr>
<td>5. Upon completion of the task OR end of 10-min, teacher provides access to preferred item.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: Social Validity Questionnaire (Teacher Version)

Social Validity Questionnaire
(Teacher Version)

For each question, please circle the number that best represents the response that you feel best fits your answer. In addition, please provide any comments or feedback that you would like to share.

1 = Strongly Disagree       2 = Disagree       3 = Neutral       4 = Agree       5 = Strongly Agree

<table>
<thead>
<tr>
<th>Question</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providing choices was easy to implement.</td>
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<tr>
<td>I would implement choices in my classroom.</td>
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<td>I would recommend choices to others.</td>
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<tr>
<td>Providing reinforcement was easy to implement.</td>
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<tr>
<td>I would implement reinforcement in my classroom.</td>
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<td>I would recommend reinforcement to others.</td>
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<tr>
<td>I saw a positive change in my student’s behavior.</td>
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<tr>
<td>I had a positive experience participating in this study.</td>
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<tr>
<td>Which procedure did you prefer (activity choice or reinforcement) and why?</td>
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</table>

Comments:
Appendix D: Social Validity Questionnaire (Student Version)

Social Validity Questionnaire
(Student Version)

For each statement, please circle the face that best matches what you think.

**I liked choosing what I got to work on.**

I liked getting something after doing my work.

What did you like about getting a choice?

What did you like about getting something after doing your work?
Appendix E: Open-Ended Functional Assessment Interview

Date of Interview: Child/Client: Interviewer:
Respondent: Respondent’s relation to child/client:

RELEVANT BACKGROUND INFORMATION
1. His/her date of birth: Age: yrs mo Check one: Male Female
2. Describe his/her language abilities:
3. Describe his/her play skills and preferred toys or leisure activities:
4. What else does he/she prefer?

QUESTIONS TO INFORM THE DESIGN OF A FUNCTIONAL ANALYSIS

To develop objective definitions of observable problem behaviors:
5. What are the problem behaviors? What do they look like?

To determine which problem behavior(s) will be targeted in the functional analysis:
6. What is the single-most concerning problem behavior?

7. What are the top 3 most concerning problem behaviors? Are there other behaviors of concern?
To determine the precautions required when conducting the functional analysis:
8. Describe the range of intensities of the problem behaviors and the extent to which he/she or others may be hurt or injured from the problem behavior.

To assist in identifying precursors to dangerous problem behaviors that may be targeted in the functional analysis instead of more dangerous problem behaviors:
9. Do the different types of problem behavior tend to occur in bursts or clusters and/or does any type of problem behavior typically precede another type of problem behavior (e.g., yells preceding hits)?

To determine the antecedent conditions that may be incorporated into the functional analysis test conditions:
10. Under what conditions or situations are the problem behaviors most likely to occur?

11. Do the problem behaviors reliably occur during any particular activities?

12. What seems to trigger the problem behavior?

13. Does problem behavior occur when you break routines or interrupt activities? If so, describe.
14. Does the problem behavior occur when it appears that he/she won’t get his/her way? If so, describe the

To determine the test condition(s) that should be conducted and the specific type(s) of consequences that may be incorporated into the test condition(s):

15. How do you and others react or respond to the problem behavior?

16. What do you and others do to calm him/her down once he/she engaged in the problem behavior?

17. What do you and others do to distract him/her from engaging in the problem behavior?

In addition to the above information, to assist in developing a hunch as to why problem behavior is occurring and to assist in determining the test condition(s) to be conducted:

18. What do you think he/she is trying to communicate with his/her problem behavior, if anything?

19. Do you think this problem behavior is a form of self-stimulation? If so, what gives you that impression?

20. Why do you think he/she is engaging in the problem behavior?
Appendix F: Functional Assessment Screening Tool (FAST)

**FUNCTIONAL ASSESSMENT SCREENING TOOL (FAST)**

<table>
<thead>
<tr>
<th>Name:</th>
<th>Age:</th>
<th>Date:</th>
</tr>
</thead>
</table>

**Behavior Problem:**

**Informant:**

**Interviewer:**

*To the Interviewer:* The Functional Analysis Screening Tool (FAST) is designed to identify a number of factors that may influence the occurrence of problem behaviors. It should be used only as an initial screening tool and as part of a comprehensive functional assessment or analysis of problem behavior. The FAST should be administered to several individuals who interact with the person frequently. Results should then be used as the basis for conducting direct observations in several different contexts to verify likely behavioral functions, clarify ambiguous functions, and identify other relevant factors that may not have been included in this instrument.

*To the Informant:* After completing the section on “Informant-Person Relationship,” read each of the numbered items carefully. If a statement accurately describes the person’s behavior problem, circle “Yes.” If not, circle “No.” If the behavior problem consists of either self-injurious behavior or “repetitive stereotyped behaviors,” begin with Part I. However, if the problem consists of aggression or some other form of socially disruptive behavior, such as property destruction or tantrums, complete only Part II.

**Informant-Person Relationship**

Indicate your relationship to the person: Parent, Teacher/Instructor, Residential Staff, Other

How long have you known the person? Years, Months

Do you interact with the person on a daily basis? Yes, No

If “Yes,” how many hours per day? If “No,” how many hours per week?

In what situations do you typically observe the person? (Mark all that apply)

- Self-care routines
- Academic skills training
- Meals
- When (s)he has nothing to do
- Leisure activities
- Work/vocational training
- Evenings
- Other

**Part I. Social Influences on Behavior**

1. The behavior usually occurs in your presence or in the presence of others. Yes, No

2. The behavior usually occurs soon after you or others interact with him/her in some way, such as delivering an instruction or reprimand, walking away (ignoring) him/her, taking away a “preferred” item, requiring him/her to change activities, talking to someone else in his/her presence, etc. Yes, No

3. The behavior often is accompanied by other “emotional” responses, such as yelling or crying. Yes, No

Complete Part II if you answered “Yes” to item 1, 2, or 3. Skip Part II if you answered “No” to all three items in Part I.

**Part II. Social Reinforcement**

4. The behavior often occurs when he/she has not received much attention. Yes, No

5. When the behavior occurs, you or others usually respond by interacting with him/her in some way (e.g., comforting statements, verbal correction or reprimand, response blocking, redirection). Yes, No

6. (s)he often engages in other annoying behaviors that produce attention. Yes, No

7. (s)he frequently approaches you or others and/or initiates social interaction. Yes, No

8. The behavior rarely occurs when you give him/her lots of attention. Yes, No

9. The behavior often occurs when you take a particular item away from him/her or when you terminate a preferred leisure activity. (If “Yes,” identify:________) Yes, No

10. The behavior often occurs when you inform the person that (s)he cannot have a certain item or cannot engage in a particular activity. (If “Yes,” identify:________) Yes, No

11. When the behavior occurs, you often respond by giving him/her a specific item, such as a favorite toy, food, or some other item. (If “Yes,” identify:________) Yes, No

12. (s)he often engages in other annoying behaviors that produce access to preferred items or activities. Yes, No

13. The behavior rarely occurs during training activities or when you place other types of demands on him/her. (If “Yes,” identify the activities: _______self-care _______academic _______work _______other) Yes, No

Adapted from the Florida Center on Self-Injury
Functional Assessment Screening Tool
Page 2

14. The behavior often occurs during training activities or when asked to complete tasks.
15. (S)he often is noncompliant during training activities or when asked to complete tasks.
16. The behavior often occurs when the immediate environment is very noisy or crowded.
17. When the behavior occurs, you often respond by giving him/her brief “break from an ongoing task.”
18. The behavior rarely occurs when you place few demands on him/her or when you leave him/her alone.

Part III. Nonsocial (Automatic) Reinforcement

19. The behavior occurs frequently when (s)he is alone or unoccupied.
20. The behavior occurs at relatively high rates regardless of what is going on in his/her immediate surrounding environment.
21. (S)he seems to have few known reinforcers or rarely engages in appropriate object manipulation or “play” behavior.
22. (S)he is generally unresponsive to social stimulation.
23. (S)he often engages in repetitive, stereotyped behaviors such as body rocking, hand or finger waving, object twirling, mouthing, etc.
24. When (s)he engages in the behavior, you and others usually respond by doing nothing (i.e., you never or rarely attend to the behavior.)
25. The behavior seems to occur in cycles. During a “high” cycle, the behavior occurs frequently and is extremely difficult to interrupt. During a “low” cycle the behavior rarely occurs.
26. The behavior seems to occur more often when the person is ill.
27. (S)he has a history of recurrent illness (e.g., ear or sinus infections, allergies, dermatitis).

Scoring Summary
Circle the items answered “Yes.” If you completed only Part II, also circle items 1, 2, and 3.

<table>
<thead>
<tr>
<th>Likely Maintaining Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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</thead>
<tbody>
<tr>
<td>Social Reinforcement (attention)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Social Reinforcement (access to specific activities/items)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>14</td>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
</tr>
<tr>
<td>Social Reinforcement (escape)</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
</tr>
<tr>
<td>Automatic Reinforcement (sensory stimulation)</td>
<td>19</td>
<td>20</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
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<tr>
<td>Automatic Reinforcement (pain attenuation)</td>
<td>19</td>
<td>20</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
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Comments/Notes: ____________________________________________
__________________________________________________________________________________________________________________________________________________________

Adapted from the Florida Center on Self-Injury
Appendix: G: IRB Approval Letter

12/5/2019

Sara Hordges  
ABA-Applied Behavior Analysis  
11364 Brookgreen Drive  
Tampa, FL  33624

RE: Expedited Approval for Initial Review  
IRB#: Pro00041675  
Title: Choice versus Reinforcement: Which Produces Better Effects in Decreasing Disruptive Behavior for Students with or At Risk of Emotional Behavior Disorder?

Study Approval Period: 12/2/2019

Dear Ms. Hordges:

On 12/2/2019, the Institutional Review Board (IRB) reviewed and APPROVED the above application and all documents contained within, including those outlined below. **Please note this study is approved under the 2018 version of 45 CFR 46 and you will be asked to confirm ongoing research annually in place of a full Continuing Review. Amendments and Reportable Events must still be submitted per USF HRPP policy.**

Approved Item(s):  
Protocol Document(s): Protocol

Consent/Assent Document(s)*:  
Parent Consent.pdf  
Teacher Consent Form.pdf  
Verbal Assent **

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent documents are valid until the consent document is amended and approved. ** Please note, verbal and online consent documents will not have the official IRB stamp.
Appendix H: Manatee County School District Approval Letter

SCHOOL DISTRICT OF MANATEE COUNTY

August 19th, 2019

Dear Ms. Hordges,

The School District of Manatee County has agreed to participate in your research proposal. A copy of this letter must be available to all participants at the designated school through which your research is being conducted. This is to assure them your research has been approved by the district. Approval is given for your research under the following conditions:

1) The designated school for which your research will be conducted must be approved and supervised by an ESE Behavior Specialist.
2) Participation is to be on a voluntary basis. That is, participation is not mandatory and you must advise all participants that they are not obligated to participate in your study.
3) If the principal agrees the school will participate, it is up to you to find out what rules the school has for allowing people on campus and you must abide by the schools' check-in policy. You will not be allowed on any school campus without first following the school's rules for entering campus grounds.
4) Parent permission must be obtained for all student involved in your research. You must indicate in your letter to the parent all the types of data you will be collecting (i.e. race, gender, FSA scores, etc.). You must have this consent before you begin your research of data.
5) Confidentiality must be assured for all. That is, all data must be aggregated such that the participants cannot be identified. Participants include the district, principals, administrators, teachers, support personnel, students and parents.
6) Data collection cannot occur while the students are testing (i.e. FSA, iReady, Benchmark Assessments, ELL, etc.). It is up to you to find out what the testing schedule is for the participants and schedule data collection accordingly.
7) This approval will expire at the end of the 2019-2020 school year. You will have to contact us at the time if you feel your research approval should be extended.
8) Your proposal indicates that you will come into contact with students. You must be fingerprinted and drug tested and you will not be allowed to do your research until this process has been completed.

Good luck with your research,

[Signatures]

Nicole Cox
ESE Director
Karen Mills
Behavior Specialist
Practicum Supervisor
Sara Barnes
Behavior Specialist
Practicum Supervisor