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## Evaluating the Use of Alternative Seating with Children at Risk for Emotional Behavioral Disabilities

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Evaluating the Use of Alternative Seating with Children at Risk for Emotional Behavioral  
Disabilities

by

Corinne E. Bloom Williams

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Master of Science in Applied Behavior Analysis  
Department of Child and Family Studies  
College of Behavioral and Community Sciences  
University of South Florida

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Keywords: classrooms, Kore<sup>TM</sup> wobble chair, scoop rocker chair, stability stools

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## **DEDICATION**

I dedicate this manuscript to my parents, Paula and David, my husband, John, and my brother, Alexander. Thank you for all your unwavering support and help throughout this entire process. You all have pushed me to my full potential and have stayed by my side. I greatly appreciate all your love, support, and encouragement. I would also like to dedicate this my cat, Penny Lane, who was always trying to help type and make edits, even though her edits did not make it to the final manuscript.

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## **ABSTRACT**

Characteristics of emotional and behavioral disabilities (EBD) include learning difficulties that cannot be explained by intellectual, sensory, or health factors and an inability to build or maintain satisfactory interpersonal relationships with peers and teachers. Often, children with EBD have a tendency to have negative experiences in school and engage in challenging behavior in the classroom. This could stem from their lack of desire or motivation to succeed, which is often found in individuals with EBD. One possible antecedent manipulation, alternative seating, may reduce problem behavior and involves exchanging the typical seating and tables in classrooms for different types of seating options with various sizes and functions. The purpose of this study was to evaluate the use of stability stools and scoop rocker chairs on in-seat behavior and on-task behavior in classrooms with children with at risk for EBD. All three participants demonstrated improvements in in-seat behavior using both types of alternative seating compared to a standard classroom chair. On-task behavior improved for all students but was variable for two students. Teachers preferred the stability stool while results were mixed between the stool and the rockers on preference for students.



## **CHAPTER ONE:**

### **INTRODUCTION**

According to the Individuals with Disabilities Educational Act (IDEA), emotional and behavioral disabilities, or EBD, can be defined as a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance. IDEA lists these characteristics in section 300.8 (c) (4) (i) as: “(a) an inability to learn that cannot be explained by intellectual, sensory, or health factors, (b) an inability to build or maintain satisfactory interpersonal relationships with peers and teachers, (c) inappropriate types of behavior or feelings under normal circumstances, (d) a general pervasive mood of unhappiness or depression, and (e) a tendency to develop physical symptoms or fears associated with personal or school problems” (Council for Exceptional Children, 2018). Some characteristics and behaviors seen in children diagnosed with EBD include hyperactivity, aggression or self-injurious behavior, withdrawal, immaturity, and learning difficulties (Council for Exceptional Children, 2018).

Children and youth with EBD often live in households in which multiple risk factors exist for poor life outcomes. These children frequently have serious and multiple impairments, which include a range of emotional disabilities, poor communication skills, and low academic achievement (Council for Exceptional Children, 2018). Many times, they have a high rate of suspension and expulsion and an unstable school environment. Wagner, Kutash, Duchnowski, Epstein, and Sumi (2005) assessed data from the Special Education Elementary Longitudinal Study and the National Longitudinal Transition Study 2 and found that there is a need to

emphasize programs that address both the academic and behavioral needs of these children and youth. Researchers also found that parents of children and youth with EBD work harder to secure services for their children and are less satisfied with these services when compared to parents of children in other disability groups (Wagner, et al. 2005). Often, children and adolescents with EBD have a tendency to have negative experiences in school, which could stem from a lack of desire or motivation to succeed (Toms, 2018).

There has also been a great deal of research completed using positive behavioral strategies for students with EBD (Lukowiak, 2010). One type of evidence-based intervention strategy involves manipulating antecedent stimuli to evoke a desired behavior, so the behaviors can be differentially reinforced, which may lead to decreases in undesirable behaviors that interfere with the desirable behavior. This can also involve changing some aspect of the environment to evoke an appropriate response or to prevent a problem behavior from occurring; this intervention is known as antecedent manipulations (Miltenberger, 2012). One possible antecedent manipulation involves exchanging the typical seating and tables in classrooms for different types of seating options with various sizes and functions. This intervention is referred to as alternative seating in classrooms. Parcels, Stommel, and Hubbard (1999) examined the possible mismatch between the individual body dimensions of students and the classroom furniture they use. This study used anthropometric measurements such as elbow height, shoulder height, upper arm length, knee height, popliteal height, buttock-popliteal length and stature for each student. Researchers utilized three styles of chairs and three styles of desks and constructed measures of fit or mismatch per each student's measurements. When compared with the classroom furniture available to these students, there was a substantial degree of mismatch with the student's dimensions. They concluded that the furniture already in these classrooms were not

conducive to learning and suggested that students should have different sizes of desks and chairs available in class which fit their body better.

Wingrat and Exner (2005) examined this theory when they compared normal desk and chairs to smaller, appropriately sized desks and chairs for children in classrooms. Participants in this study stayed in their seats longer and were on task more when seated in smaller furniture. In a systematic review of whether the design and/or dimensions of school furniture affected the students' physical responses and/or their performance, researchers found the key factor for improving students' physical responses was the compatibility between school furniture dimensions and student's anthropometric characteristics (Castellucci, Arezes, Molenbroek, de Bruin, & Viviani, 2017). The results of this review indicated that 64% of studies produced positive results or were effective. Some furniture with the most positive effects included high furniture, sit-stand furniture, tilt tables, and seats (Castellucci et al. 2017).

Teachers are often very open to trying alternative seating in their classrooms. They have consistently reported that it is easy to implement and maintain which suggests good contextual fit (Drobnjak, 2017; Hill & Nickels, 2018; Hudson, 2017; Russell, 2017; Schoolcraft, 2018). According to Drobnjak (2017), alternative seating improves participation and behavior, improves core strength and posture, lessens restlessness, improves attention and focus, burns calories and expends energy, and results in higher academic performance. A wide range of types of alternative seating options exist; these can range from commercial to do-it-yourself (DIY), and range in price. Alternative seating can be as simple as modifying the tables (i.e., raised or lowered) as previously discussed or adding classroom standing desks. Other alternative seating options are area rugs, cushions, bean bags, floor pillows, DIY bungee cord bouncing bands, therapy balls, and wobble chairs (Hill & Nickels, 2018).

One type of alternative seating that has been evaluated extensively is the therapy ball. Therapy balls, also known as yoga balls or exercise balls, are giant inflatable balls that allow students to gently bounce while seated and encourage good posture (Russell, 2017). The use of therapy balls has been shown to increase in-seat behavior and legible word productivity with students with ADHD (Schilling, Washington, Billingsley, & Deitz, 2003). Students with autism spectrum disorder (ASD) have also demonstrated improvements in behaviors such as engagement, in-seat behavior, and attending to instruction when using therapy balls (Krombach, 2016; Schilling & Schwartz, 2004). Unfortunately, Taipalus et al. (2017) did not find an effect on on-task behavior and academic performance when students with ADHD used therapy balls. Although results for therapy balls in classrooms have been mostly positive, the social validity has had mixed results. Many teachers and therapists did not like the therapy balls; they found the bouncing to be distracting, difficult to use, and dangerous (Hoofman, 2018; Krombach, 2016; Taipalus et al., 2017). Schoolcraft (2018) conducted interviews, observations, and surveys to understand what students and teachers thought about using therapy balls instead of desk chairs. Again, the results were mixed. Some students believed moving while being seated was helpful, others found the movement distracting. There has been a development of apparatuses that serve as a base for the therapy ball that would keep the ball stationary while still allowing the subject to bounce while seated. Unfortunately, there has not been any research to examine if the therapy ball with a base would still increase in-seat and on-task behaviors while receiving higher social validity compared to therapy balls without a base.

Therapy stools have also been growing in popularity as an alternative seating in the classroom. Also known as wobble stools or stability stools, this alternative seating option allows children to rock, sway, tilt, and fidget. Its base allows movement while preventing tipping

(Russell, 2017). Hoofman (2018) evaluated the effects of therapy balls versus stability stools on in-seat and on-task behavior for children with disabilities. For one of the three participants in this study, higher intervals of in-seat behavior were observed when seated on the stability stool compared with the therapy ball. For the other two participants, both therapy balls and stability stools resulted in similar improvements in in-seat and on-task behavior compared to the traditional chair. Interestingly, teachers in this study preferred the stability stools over the balls and the students picked the stools more often in the choice phase of the study. Another type of alternative seating, scoop rocking chairs allow children to sit on the floor with the flexibility to rock and recline as they work (Russell, 2017). There has been no known research that evaluates scoop rocking chairs, or scoop rockers, on in-seat behaviors however, there has been praise from teachers on the effects of scoop rockers (Drobniak, 2017; Hudson, 2017; Russell, 2017). Many teachers explain that they provide a low-profile, inexpensive option for alternative seating. In addition, they are extremely easy to store (Hudson, 2017).

Alternative seating has been evaluated mostly with typically developing children (Castellucci et al. 2017; Parcels et al., 1999; Schoolcraft, 2018; Wingrat & Exner, 2005), children with ASD (Hoofman, 2018; Krombach, 2016; Matin Sadr et al., 2017; Schilling & Schwartz, 2004; Umeda & Deitz, 2011), and children with ADHD (Schilling et al. 2003; Taipalus et al., 2016). No known research has evaluated the effects that alternative seating might have with children with EBD. Therefore, it is possible that alternative seating could positively affect behaviors often seen in children with EBD. The purpose of this study was to evaluate the use of stability stools and scoop rocker chairs on in-seat behavior and on-task behavior for children at risk for a diagnosis of EBD.

## **CHAPTER 2:**

### **METHOD**

#### **Participants and Setting**

Three kindergarten boys participated in the study; Ringo, George, and Paul. Each participant was in different Kindergarten classrooms at public schools in a large metropolitan school district in Florida. Ringo was a 6-year-old Caucasian boy diagnosed with ADHD and was reported to have low impulse control; Ringo was at risk for a diagnosis of EBD due to his aggression and impulsivity. Ringo's kindergarten teacher was Mrs. Rita, a Caucasian female who had been teaching for 25 years including 5 years as a kindergarten teacher. George was a 5-year-old Hispanic boy with no formal diagnosis but reports of EBD symptoms and ADHD symptoms, including impulsivity and aggressive behaviors. George's kindergarten teacher was Mrs. Eleanor, a Caucasian female who had been teaching for 17 years including teaching kindergarten for 15 years. Paul was a 6-year-old Caucasian boy diagnosed with a communication/speech disorder and received Exceptional Student Education (ESE) services for these diagnoses. Paul also exhibited signs of EBD and ADHD in the form of impulsivity, inability to focus, and inability to stay on task. Paul's kindergarten teacher was Mrs. Lucy, a Caucasian female who had been teaching for 11 years including teaching kindergarten for 10 years.

All participants were recommended for the study by their teachers because they had difficulty sitting in their chairs and staying on-task during academic work times. All participants were in separate kindergarten classrooms where they completed independent work in a typical desk chair and desk or table. Data was collected in the participants normal classrooms during

morning independent desk work, which was the time of day when all three participants were reported as having difficulty staying in their seat and staying on-task. Subjects and topics for morning work varied, ranging from writing, reading, and math. An initial observation was conducted to confirm that the student had low levels of in-seat and on-task behaviors during independent work time.

## **Materials**

Standard desk chairs, stability stools, and scoop rocker chairs were used during this study. The standard chair was the typical desk chair already in the classroom; this chair had four legs and was appropriate for the size of a typical kindergartener. The stability stool (Kore Wobble Chair) was an oblong stool with a gentle-rounded base to prevent tipping over. Kore™ wobble stools can be bought in a variety of online stores and range in price from \$50 to \$60 per stool (Kore™ Design LLC.). The scoop rocker was a small rocker that sits on the floor level. Scoop Rocker chairs can be bought in a variety of online stores and are sold in sets of six. Prices range from \$35 to \$48 for a pack of six. When using the scoop rocker chair, the participants were also provided a clip board, so they were able to complete work. Researchers used the Countee© application on a smart phone or tablet for data collection.

## **Target Behaviors and Data Collections**

All sessions lasted 5 min each. Data was collected using duration of on-task and in-seat behavior. Researchers sat in the classroom in view of the participant and recorded if the participant was in their seat and on task using the Countee© app. Data was collected by the researcher clicking the on-task behavior and in-seat behavior buttons when the participant was on-task and in-seat respectively, and clicking the buttons again to stop duration to signify when

the participant was off-task and out-of-seat respectively. Frequency of teacher prompts was also recorded during each session.

**In-Seat.** In-seat behavior for standard chairs was defined as any portion of the participants' buttocks in contact with the seat portion of the chair and at least one foot in contact with the ground. In-seat behavior while on the stability stools was defined as any portion of the participants' buttocks in contact with the stool and the stool simultaneously remaining in contact with the floor; this also includes having at least one foot in contact with the ground or in contact with the base of the stool (Hoofman, 2018). In-seat behavior for the scoop rocker chair was defined as any portion of the participants' buttocks in contact with the inside curved part of the chair and the chair remaining in contact with the floor. This also included having at least one foot in contact with the ground.

**On-task.** On-task behavior was defined as the participant oriented toward the teacher or the appropriate task and materials. This included the appropriate interaction with the materials, responding to the speaker and/or looking at the speaker (Hoofman, 2018; Krombach, 2016; Matin Sadr et al., 2017; Schilling et al., 2003).

**Teacher Prompts.** The frequency of teacher prompts in response to the child having in-seat and on-task behavior was recorded during each session. These prompts included verbal prompts, gestural prompts, or full physical prompts.

### **Interobserver Agreement**

Secondary data collectors collected the same interval data independently across sessions for each participant. The data collectors were trained by the researcher who first described and discussed the definitions then data collectors observed the researcher collect data for one session with the study participants. Secondary data collectors were considered trained after 80%



agreement in both in-seat and on-task behaviors was obtained. If agreement fell below 80%, secondary data collectors were retrained. Data was collected in person through the Countee© app on a separate device. Total number of seconds in-seat and on-task were compared to determine agreement. To calculate IOA, the lower number of seconds was divided by the larger total of seconds and was multiplied by 100 to calculate the percentage of agreement.

IOA was calculated during 25% of all baseline sessions (23% of sessions for Ringo, 39% of sessions for George, and 17% of sessions for Paul). During baseline, there was 92% agreement for in-seat behaviors (83% agreement for Ringo, 93% agreement for George, and 95% agreement for Paul) and 83% agreement for on-task behaviors (80% agreement for Ringo, 88% agreement for George, and 80% agreement for Paul).

IOA for intervention was calculated for 38% of sessions (32% of sessions for Ringo, 41% of sessions for George, and 42% of sessions for Paul). In-seat behavior demonstrated 98% agreement for all intervention sessions (98% agreement for Ringo, 96%, agreement for George, and 99% agreement for Paul). On-task behaviors showed 89% agreement for intervention sessions (95% agreement for Ringo, 85% agreement for George, and 85% agreement for Paul). IOA for the choice phase was calculated for 35% of sessions (38% of sessions for Ringo, 33% of sessions for George, and 33% of sessions for Paul). In-seat behavior demonstrated 98% agreement for all choice sessions (97% agreement for Ringo, 98% agreement for George, and 98% agreement for Paul). On-task behaviors showed 92% agreement for choice sessions (96% agreement for Ringo, 97% agreement for George, and 83% agreement for Paul).

### **Social Validity**

Social validity was assessed through two questionnaires. One questionnaire was designed for the teacher and the other questionnaire was designed for participants in the study. The teacher

social validity questionnaire (see Appendix A) included five items, scored on a 5-point Likert-type scale. Questions were related to how the teacher felt about the intervention and their perspective on how the intervention affected the targeted behaviors. Items on this questionnaire included statements such as, “My students were able to stay seated longer when seated in the stability stool/scoop rocker chair,” and “I would recommend alternative seating to other teachers.” The student social validity questionnaire (see Appendix B) included a simplified 3-point scale: yes, maybe, and no. Statements were related to how they liked sitting in the different seats. Students also indicated what type of seating they liked the best. There was also a choice phase in the design of the study where participants chose their preferred seating. This phase was used as an additional measure to assess the type of seating most preferred by each participant.

### **Treatment Integrity**

Treatment integrity was assessed using a task analysis (see Appendix C). A research assistant recorded if the teacher correctly executed each of steps during intervention and the choice phase. Treatment integrity was calculated by dividing the number of correct steps by the total number of steps and multiplying by 100. Training of the intervention consisted of modeling correct implementation followed by the teacher rehearsing the steps with feedback from the researcher. All teachers, Mrs. Rita, Mrs. Eleanor, and Mrs. Lucy received 100% treatment integrity across 40%, 44%, and 42% of sessions respectively.

### **Experimental Design**

A non-concurrent multiple baseline across participants with an alternating treatments design was used. The intervention phase consisted of alternating between two conditions: intervention with the stability stool and intervention with the scoop rocker chair. A choice condition followed the alternating conditions treatment phase.

## **Procedures**

During all phases of the study, data was collected during the morning independent work time as described earlier. Additionally, for all conditions, teachers were instructed to respond to appropriate and problem behavior as they normally would in their classroom.

**Baseline.** During baseline, no changes to the classroom setting were made. Participants sat in the typical chair that was already in the classroom.

**Stability Stool.** Prior to this condition, participants had an opportunity to sit on the stability stool and learn how to use it appropriately. Behavioral skills training (BST) was used to teach the participants to appropriately sit on the stability stool. This training consisted of instructions, modeling, rehearsal, and feedback on correct sitting (Miltenberger, 2012). During this condition, participants were asked to sit on the stability stool during the same routine as in baseline. Participants were seated at their normal desk with the stability stool in place of their typical chair.

**Scoop Rocker Chair.** Prior to this condition, participants had an opportunity to sit on the scoop rocker chair and learn how to use it appropriately. Similar to the stability stool condition, modified BST was used to teach the participant to appropriately sit on the scoop rocker chair (due to size restraints, modeling could not be conducted during training as only children can fit in the scoop rocker chair). During this condition, participants were asked to sit on the scoop rocker chair during the same routine as in baseline. Teachers chose where they believed it would be appropriate for the participant to sit where they could still see the board but not be in the way of the class. Mrs. Rita and Mrs. Lucy had their students, Ringo and Paul, sit toward the back of the room, while Mrs. Eleanor had George sit in the front on a rug.

**Choice.** In this condition, participants were able to choose which seating method they would like to use during the same routine as used in baseline and the alternating treatments condition. All three types of seating were available: chair, stability stool, and scoop rocker chair. A paper depicting pictures of all three choices was presented to participants. The participant could either respond verbally or physically point to the picture of the seating type that they wanted to use during this condition. If the participant did not make a choice, a 10 s break would have been provided, and the choices would have been presented a second time, however participants always made a choice on the first prompt.

## **CHAPTER THREE:**

### **RESULTS**

In-seat behaviors for all three participants are shown in Figure 1, and on-task behaviors are displayed in Figure 2. All three participants showed an immediate increase in in-seat behaviors when presented with the different seating options.

Ringo's in-seat behaviors during baseline averaged 17% of the session with quite a bit of variability (ranging from 0% to 99%) and his on-task behaviors were also variable during baseline and averaged 34% of the session (ranging from 0% to 68%). Mrs. Rita, Ringo's teacher, averaged 1.1 prompts per session with a range of 0 to 4 prompts. During intervention, Ringo's in-seat behavior increased to an average of 89% in the stability stool and 92% in the scoop rocker chair with less variability. Ringo's on-task behaviors also increased during intervention to an average of 89% in the stability stool (with ranges from 70% to 100%) and 94% on-task in the scoop rocker chair with less variability compared to baseline (with ranges from 77% to 100%). Mrs. Rita's teacher prompts decreased to an average of 0.8 prompts per session ranging again from 0 to 4 prompts per session. During the choice phase, Ringo chose to sit on the standard desk chair 1 time, the stability stool 10 times, and the scoop rocker chair 2 times. During the choice phase, Ringo's average in-seat behavior and on-task behaviors in the standard chair increased to 99%. In-seat behaviors remained at 89% on the stability stool (ranging from 69% to 100%) and increased to 96% on the scoop rocker chair (ranging from 92% to 100%) in the choice phase. On-task behaviors increased to 90% on the stability stool (with ranges from 58% to 100%) and

95% in the scoop rocker chair (with ranges from 90% to 99%). Teacher prompts continued to decrease in the choice phase to an average of 0.6 prompts (ranging from 0 to 2) per session.

George's in-seat behaviors during baseline were variable (ranging from 0% to 95%) with an average of 22% while on-task behaviors started off high then decreased during baseline and averaged 26% across the phrase (with a range of 0% to 80%). Mrs. Eleanor, George's teacher, averaged 1.8 prompts per session with a range of 0 to 5 prompts. During intervention, George's in-seat behavior increased, then showed some variability across the phase, but averaged 84% in the stability stool (ranging from 41% to 100%) and 80% in the scoop rocker chair (ranging from 52% to 100%). George's on-task behaviors also increased during intervention to an average of 74% in the stability stool (ranging from 52% to 99%) and 65% on-task in the scoop rocker chair (ranging from 19% to 96%). Mrs. Eleanor's teacher prompts decreased to an average of 1.2 prompts per session ranging from 0 to 4 prompts per session. During the choice phase, George sat in the stability stool 6 times and the scoop rocker chair 3 times. In the choice phase, George's in-seat behaviors increased to an average of 93% on the stability stool (ranging from 88% to 100%) and increased to an average of 92% in-seat while in the scoop rocker chair (ranging from 88% to 94%). George's on-task behaviors also increased and remained stable in the choice phase to an average of 84.5% in the stability stool (with ranges of 62% to 99%) and an average of 83% in the scoop rocker chair (with ranges of 66% and 97%). Average teacher prompts decreased again in the choice phase to 0.8 (ranging from 0 to 3 prompts) per session.

Paul's in-seat behaviors during baseline were higher than the other two participants but variable and averaged 72% (ranging from 0% to 99%) while on-task behaviors were lower and averaged 41% (ranging from 1% to 90%). Mrs. Lucy, Paul's teacher, averaged 0.4 prompts per session with a range of 0 to 2 prompts. During intervention, Paul's in-seat behavior increased

and was less variable across both types of seating with an average of 94% in the stability stool (with ranges from 64% to 100%) and 95% in the scoop rocker chair (ranging from 71% to 100%). Ringo's on-task behaviors also increased but remained highly variable during intervention to an average of 67% in the stability stool (ranging from 39% to 96%) and 62% on task in the scoop rocker chair (ranging from 0% to 97%). Mrs. Lucy's teacher prompts remained at 0.4 prompts per session ranging again from 0 to 2 prompts per session. In the choice phase, Paul chose to sit on the standard desk chair 2 times, the stability stool 5 times, and the scoop rocker chair 5 times. Paul's in-seat and on-task behaviors decreased to an average of 63% (with data points at 53% and 72%) and 21% (with two points at 16% and 25%) respectively when seated on the typical desk chair. Paul's in-seat behavior decreased from the alternating treatments phase in the stability stool to 83% (ranging from 75% to 93%) and increased to an average of 97% in the scoop rocker chair (with ranges from 90% to 100%) but remained stable for both types of seating. On-task behaviors decreased from the alternating treatments phase to an average of 52% on the stability stool (ranging from 35% to 67%) and 61% on the scoop rocker chair (ranging from 22% to 85%) and were variable. Teacher prompts increased slightly to an average of 0.5 (ranging from 0 to 2) prompts per session.

Teacher social validity and student social validity results are demonstrated in tables 1 and 2 respectively. All teachers reported that their students had trouble staying in their seats and staying on task when seated in a typical classroom chair. All teachers agreed that giving students a choice of seating impacted their in-seat and on-task behaviors, that alternative seating is an intervention that they can implement with fidelity, and that alternative seating is an easy to implement intervention. All teachers also reported that they would use alternative seating in their classrooms, and they would recommend alternative seating to another teacher. Mrs. Rita believed

that both the stability stool and scoop rocker chair improved in-seat and on-task behaviors for her student, Ringo, that they were not distracting to other students, and that she would use both in her classroom. Mrs. Eleanor believed both stability stools and scoop rocker chairs helped her student, George, stay in his seat and on-task longer and reported that she would use both in her classroom. However, Mrs. Eleanor reported that both the stability stool and scoop rocker chair might have been a distraction to other students. Mrs. Lucy, Paul's teacher, did not agree nor disagree that the stability stools and scoop rocker chairs helped her student stay in-seat or on-task longer. She also reported that she believed the stability stools and scoop rocker chairs were not a distraction to other students. All three teachers preferred the stability stools because students were able to sit in their assigned area at a desk.

Additionally, all three participants reported that they did not enjoy sitting at their normal desk and chair. All participants also reported that they liked using the stability stools and felt they worked harder while working on the stability stool. Ringo and George stated that they liked the scoop rocker chairs and felt they worked harder while working on the scoop rocker chair. Paul, however, was not sure if he liked the scoop rocker chairs and was not sure if he worked harder while sitting on the scoop rocker chairs. Ringo reported that he liked both the scoop rocker chair and the stability stool. George reported that he preferred the scoop rocker chair, and Paul reported that he preferred the stability stool.





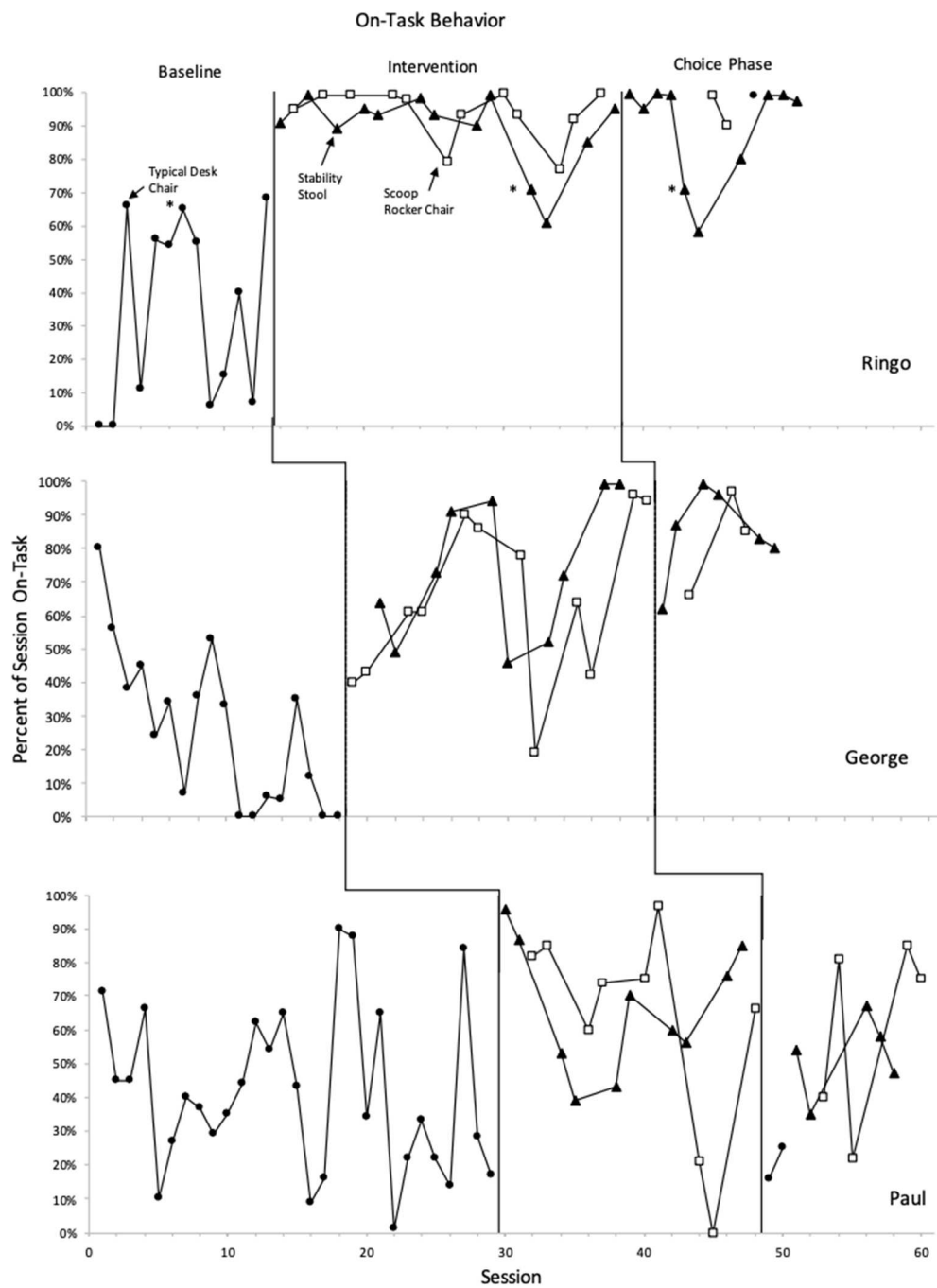


Figure 2. Results for on-task behavior. Asterisk indicates medication change

Table 1

## Social validity results for teachers

Key: 1 = Strongly Disagree 2 = Somewhat Disagree 3 = Neither Agree nor Disagree 4 = Somewhat agree 5 = Strongly Agree		Mrs. Rita	Mrs. Eleanor	Mrs. Lucy	Average
Overall	My students do not have problems with staying in their seats and being on task when seated in a typical classroom chair.	1	1	2	1.3
	I believe giving students a choice of seating impacted their in-seat behavior and on-task behaviors	4	5	4	4.3
	I believe using alternative seating is an intervention I can actively implement with fidelity	4	5	5	4.7
	Alternative seating is an easy intervention to implement	5	5	5	5
	I would use alternative seating in my class	5	5	5	5
	I would recommend alternative seating to other teachers	5	5	5	5
Stability Stools	Stability Stools helped my students focus on their task	5	5	3	4.3
	My students were able to stay seated longer when seated on the stability stool	5	5	3	4.3
	Stability Stools are not distracting to other students in the classroom	5	2	4	3.7
	I would use stability stools in my classroom	5	5	5	5
Scoop Rocker Chair	Scoop Rocking chair helped my students focus on their task	5	5	3	4.3
	My students were able to stay seated longer when seated on the scoop rocker chair	5	5	3	4.3
	Scoop rocker chairs are not distracting to other students in the classroom	5	2	4	3.7
	I would use scoop rocker chairs in my classroom	5	5	5	5
Preference		Stability Stool	Stability Stool	Stability Stool	

Table 2

Social validity results for students

Key: No = 0 Maybe = 1 Yes = 2	Ringo	George	Paul	Average
1. I enjoy sitting in the normal desk and chairs	0	0	0	0
2. I liked using the stability stool	2	2	2	2
3. I liked using the scoop rocking chairs	2	2	1	1.67
4. I think I worked harder when sitting on the stability stool	2	2	2	2
5. I think I worked harder when sitting on the scoop rocker chair	2	2	1	1.67
6. I liked getting to choose my seat.	2	2	2	2
Preference	Scoop Rocker Chair and Stability Stool	Scoop Rocker Chair	Stability Stool	

## **CHAPTER 4**

### **DISCUSSION**

The purpose of this study was to evaluate the effects of the stability stools and scoop rocker chairs on in-seat and on-task behaviors in an academic setting for children at risk for EBD. Results indicate that both in-seat and on-task behaviors improved for all participants when sitting in the scoop rocker chair and the stability stool. When visually inspecting the data, there was no noticeable differentiation of the stability stool or the scoop rocker chair data paths for any of the participants. However, when analyzing averages of in-seat behaviors, all three participants had higher averages while seated in the scoop rocker chair when compared to the stability stool. Alternatively, when analyzing on-task behaviors, George and Paul had higher averages when sitting on the stability stool, while Ringo had a higher average of on-task behavior while seated in the scoop rocker chair.

The stability stool was chosen most often by all participants in the choice phase, with the exception of Paul who chose the stability stool and scoop rocker equal times. However, all students choose both the stability stool and scoop rocker chair, displaying no clear preference between the two seating options. In addition, Paul and Ringo chose to sit in their regular desk chairs at least once. Paul's in-seat behavior reduced below baseline levels when seated in the regular desk chair during the choice phase, which indicates some experimental control over the other alternative seats. In addition, the social validity results from the participants regarding their preference of seating were not consistent with the type of seating they chose most often. Ringo chose to sit in the stability stool 77% of all choice sessions but chose both the stability stool and

scoop rocker as his preference. George chose to sit in the stability stool 67% of all choice sessions, however he reported that he preferred sitting in the scoop rocker chair. Lastly, Paul chose to sit in the stability stool and scoop rocker chair 42% of the time each but reported his preference to be the stability stool. Paul also reported that he was not sure if he liked sitting on the scoop rocker chair. Perhaps the ability to change seating often in the classroom might be beneficial to maintaining high levels of in-seat and on-task behavior.

The overall results of this study are consistent with previous research that also indicated improvements in in-seat and on-task behaviors with alternative seating (Castellucci et al. 2017; Hoofman, 2018; Krombach, 2016; Matin Sadr et al., 2017; Parcels et al., 1999; Schilling et al. 2003; Schilling & Schwartz, 2004; Schoolcraft, 2018; Taipalus et al., 2016; Umeda & Deitz, 2011; Wingrat & Exner, 2005). The results for the stability stool were consistent with the findings from Hoofman (2018) related to both improvements in in-seat behavior and also teacher preference for the stability stool. However, none of the prior studies evaluated the scoop rocker chair, which resulted in similar improvements for participants. While the scoop rockers are one of the more affordable options for alternative seating, one of the downsides to the scoop rocker chairs is how low they sit to the ground, which does not allow students to use their desks for completing work.

During the study, Ringo started taking medication for his ADHD and impulsivity. It appears there may have been some changes in his in-seat and on-task behavior related to medication, as there were some days in which it was reported that he was not given his medication. Each change in medication that was reported to the researchers is indicated in the figures by an asterisk. On the occurrence where Ringo chose the regular desk chair in the choice

phase, it was reported that he did not receive his medication that day. During this session, he indicated that he was “ready to go back to his normal chair”.

Although the average percent of in-seat and on-task behaviors increased for all participants, some sessions were variable across seating types. Given these were very hectic and active kindergarten classrooms, other factors and extraneous variables on any particular school day could have resulted in some of the variability.

Anecdotally, when collecting social validity with the participants, Ringo indicated that he thought the stability stool and scoop rocker chair made him work harder and they were very comfortable. George indicated that he enjoyed both chairs. He stated that he enjoyed spinning on the stability stool and rocking all the way back in the scoop rocker chair. It should be noted rolling back in the scoop rocker chair was scored as out-of-seat behavior. Paul indicated that the regular chairs were uncomfortable, the scoop rocker chairs were kind of comfortable, and the stability stools were very comfortable. All teachers were extremely amenable to the alternative seating. Two of the three teachers, Mrs. Rita and Mrs. Eleanor, indicated that they were already looking into funding through their school to provide alternative seating to more students in their classes. All three teachers indicated that they preferred the stability stools because it allowed students to remain at their assigned area and at their desk.

There were several limitations to this study. The first limitation was that the diversity of participants was limited, as all participants were male and kindergarten age. A wider range of participants and genders would help generalize the findings to a broader population. Another limitation of this study was the many restrictions of conducting studies in a classroom setting. These restrictions include data being collected in real time as videotaping in the classroom was prohibited to respect confidentiality of other students. Other limitations of being in a classroom

included fire drills, unexpected administrative observations, and distractions of other students. In all three classrooms, other students asked the study's participants why they had a different chair or where they got the chair. Other students also attempted to take the chair and sit on it themselves. However, this might indicate that other students might find alternative seating preferable and teachers could consider offering different seating options to all students.

Future research should examine how alternative seating can be used for other age groups, academic settings, and diagnoses. Future research should continue comparisons between the standard desk chair and other types of alternative seating. Other research areas that might be of interest include using the scoop rocker chair during carpet time, using alternative seating as a reinforcer, or using alternative seating to increase in-seat and on-task behaviors during group work. Additional research could also be conducted on choice and preference for alternative seating. In conclusion, results of this study indicate a positive extension to using alternative seating for children at risk for EBD by comparing two types of alternative seating that previously had limited research. Alternative seating was a feasible and low effort procedure for teachers to improve in-seat and on-task behaviors of their students.



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## **APPENDICIES**

## Appendix A: Teacher Social Validity Questionnaire

Social Validity Questionnaire (Teacher)

1	Strongly Disagree
2	Somewhat Disagree
3	Neither Agree nor Disagree
4	Somewhat Agree
5	Strongly Agree

Overall	1. My students do not have problems with staying in their seats and being on task when seated in a typical classroom chair.	1	2	3	4	5
	2. I believe giving students a choice of seating impacted their in-seat behavior and on-task behaviors	1	2	3	4	5
	3. I believe using alternative seating is an intervention I can actively implement with fidelity	1	2	3	4	5
	4. Alternative seating is an easy intervention to implement	1	2	3	4	5
	5. I would use alternative seating in my class	1	2	3	4	5
	6. I would recommend alternative seating to other teachers	1	2	3	4	5
Stability Stools	1. Stability Stools helped my students focus on their task	1	2	3	4	5
	2. My students were able to stay seated longer when seated on the stability stool	1	2	3	4	5
	3. Stability Stools are not distracting to other students in the classroom	1	2	3	4	5
	4. I would use stability stools in my classroom	1	2	3	4	5
Scoop Rocker Chair	1. Scoop Rocking chair helped my students focus on their task	1	2	3	4	5
	2. My students were able to stay seated longer when seated on the scoop rocker chair	1	2	3	4	5
	3. Scoop rocker chairs are not distracting to other students in the classroom	1	2	3	4	5
	4. I would use scoop rocker chairs in my classroom	1	2	3	4	5

Which type of alternative seating would you prefer? Why? \_\_\_\_\_



















\_\_\_\_\_

Additional Comments: \_\_\_\_\_

\_\_\_\_\_

## Appendix B: Student Social Validity Questionnaire

Social Validity Questionnaire (student)

1. I enjoy sitting in the normal desk and chairs	 Yes	 Maybe	 No
2. I liked using the stability stool	 Yes	 Maybe	 No
3. I liked using the scoop rocking chairs	 Yes	 Maybe	 No
4. I think I worked harder when sitting on the stability stool	 Yes	 Maybe	 No
5. I think I worked harder when sitting on the scoop rocker chair	 Yes	 Maybe	 No
6. I liked getting to choose my seat.	 Yes	 Maybe	 No

My favorite seating was:

Chair



Stability Stool



Scoop Rocker Chair



Other comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## Appendix C: Treatment Integrity Checklist

Treatment Integrity Checklist

Task		Comments
1. Materials are collected: appropriate seating for trial, materials for independent task	Yes No N/A	
2. Teacher tells student to sit on correct seating	Yes No N/A	
3. Teacher waits for student to sit appropriately for 3s. If student does not sit within 3s, teacher prompts child to sit again.	Yes No N/A	
4. Teacher presents independent task to complete	Yes No N/A	
5. After 5 min, teacher removes task and verbally states, "you can have a break now"	Yes No N/A	

## Appendix E: IRB Approval Letter



RESEARCH INTEGRITY & COMPLIANCE  
Institutional Review Boards, FWA No. 00001669  
12901 Bruce B. Downs Blvd, MDC35, Tampa, FL 33612-4799  
(813) 974-5638 FAX (813) 974-7091

11/7/2019

Corinne Bloom  
CFBH-Child and Family Behavioral Health  
Tampa, FL 33612

RE: Expedited Approval for Initial Review

IRB#: Pro00041615

Title: Evaluating the use of Alternative Seating with Children with Emotional Behavioral Disabilities

Study Approval Period: 11/7/2019

Dear Ms. Bloom:

On 11/7/2019, 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):

[Study Protocol](#)

Consent/Assent Document(s)\*:

[Participant 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, the verbal assent form is not stamped.

It was the determination of the IRB that your study qualified for expedited review which includes activities that: (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review



research through the expedited review procedure authorized by 45 CFR 46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

**Children as Participants (45 CFR 46, Subpart D)**

**Research Involving Children as Subjects: 45 CFR §46.404**

This research involving children as participants was approved under 45 CFR 46.404 / 21 CFR 50.51: Research not involving greater than minimal risk to children is presented.

**Requirements for Assent and/or Permission by Parents or Guardians: 45 CFR 46.408**

Permission of one parent is sufficient.

Assent will be obtained as outlined in the IRB application.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB via an Amendment for review and approval. Additionally, all unanticipated problems must be reported to the USF IRB within five (5) business days.

We appreciate your dedication to the ethical conduct of human subjects research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



Melissa Sloan, PhD, Vice Chairperson  
USF Institutional Review Board

## Appendix F: Hillsborough County Public School Approval Letter

**School Board**  
Tamara P. Shamburger, Chair  
Melissa Snively, Vice Chair  
Steve P. Cona III  
Lynn Gray  
Stacy A. Hahn  
Karen Perez  
Cindy Stuart



**Superintendent of Schools**  
Jeff Eakins  
**Deputy Superintendent, Instruction**  
Van Ayres  
**Deputy Superintendent, Operations**  
Chris Farkas  
**Chief of Schools, Administration**  
Harrison Peters  
**General Manager**  
Office of Strategy Management  
Joe Cochran

October 28, 2019

Ms. Corinne Bloom  
13030 Tampa Oaks Blvd. Apt. 3407  
Temple Terrace, FL 33637

Dear Ms. Bloom:

The Hillsborough County Public School district has agreed to participate in your research proposal, *Evaluating the use of Alternative Seating with Children with Emotional Behavior Disorder*. A copy of this letter **MUST** be available to all participants to assure them your research has been approved by the district. **Your approval number is RR1920-22. You must refer to this number in all correspondence.** Approval is given for your research under the following conditions:

- 1) Sarah Murphy-Ellis, Coordinator, Orthopedically/Physically Impaired at the Manhattan Center is your point of contact. All research activities must go through and be approved by Sarah. You may contact Sarah at her district email - sarah.murphy-ellis@sdhc.k12.fl.us
- 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 school's check-in policy. You will **NOT BE ALLOWED** on any school campus without first following the school's rules for entering campus grounds.
- 4) You must **request approval from this department before other schools are added to your sample.**
- 5) Parent consent **must** be obtained for all students 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, testing scores, etc.) treatment proposed, and assessment measures. You **must** have this consent before you begin your research.
- 6) 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.
- 7) Any student data **MUST** be **DESTROYED** when the project has been completed.
- 8) Research approval does not constitute the use of the district's equipment, software, email, or district mail service. In addition, requests that result in extra work by the district such as data analysis, programming or assisting with electronic surveys, may have a cost borne by the researcher.
- 9) This approval **WILL EXPIRE ON 06/30/2020.** You will have to contact us at that time if you feel your research approval should be extended.

**Raymond O. Shelton School Administrative Center • 901 East Kennedy Boulevard • Tampa, Florida 33602**  
**School District Main Office: 813-272-4000 • P.O. Box 3408 • Tampa, Florida 33601 • website: [www.sdhc.k12.fl.us](http://www.sdhc.k12.fl.us)**  
**Office of Strategy Management**

October 28, 2019  
Page Two (2)

- 10) Prior to presenting your research at any conferences or submitting it to any publications, our office must approve your proposed presentation/publication.
- 11) A copy of your research findings must be submitted to this department and for our files.

**HCPS VOLUNTEER FORMS:**  
Your proposal indicates that you will come into contact with students, but your contact will be SUPERVISED. You **MUST** complete the district's Volunteer (Say Y.E.S.) Application online (instructions enclosed) and advise the school's principal or designee (the school will verify your application) and present a copy of this approval letter and a copy of your research request. **IF THIS CHANGES, YOU MUST** contact us for further instructions.

Good luck with your endeavor. If you have any questions, please advise.

Sincerely,



Julie McLeod, Manager  
Strategic Data and Evaluation  
Office of Strategy Management

JM/sk

Enclosure

cc: Sarah Murphy-Ellis, Coordinator, Orthopedically/Physically Impaired  
Kimberly Workman, General Director, ESE Department