

EFFECTIVENESS OF STABILITY BALL SEATING IN SPECIAL EDUCATION
CLASSROOM IN STUDENTS WITH AUTISM

by

Kimberly L. Brewer

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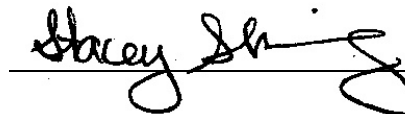
The University of Wisconsin Oshkosh
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COMMITTEE APPROVAL

 _____ Advisor

May 13, 2024 _____ Date Approved

 _____ Member

May 13, 2024 _____ Date Approved

Abstract

Students with autism spectrum disorders face multiple barriers to success within the educational environment. To maximize academic performance, educators continue to explore accommodations and modifications to the physical environment of the classroom. This study added needed information to the growing pool of mixed data regarding the use of alternate seating while focusing on a previously unexamined age group within a specified environment. This study examined the effects of stability ball seating on engagement and on-task behavior during one-to-one specialized instruction in a special education classroom with 5 students with autism ranging from 7-10 years old and attending the same Title I elementary school. Data was collected by single-subject design, The baseline phase was 5 days with the use of standard classroom seating. The baseline data was then compared with data collected during the intervention phase of 10 days, following the introduction of the stability ball chairs. Results were analyzed visually and quantitatively to determine whether a significant difference existed between student performance in the baseline and intervention phases. Results indicated that mean behavioral scores collected during the baseline phase, incorporating on-task behavior and engagement, increased during the intervention phase for all participants. Overall, stability ball seating was demonstrated to be beneficial, to varying degrees, for 5 students with autism in an elementary school environment within a special education classroom.

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Chapter 1 – Introduction

A goal that unites individuals in the education field is the desire for the success of their students. Teaching strategies and accommodations are evolving to meet the needs of the students as student needs continue to change and evolve. Special education teachers face additional challenges as they work with each individual student's unique struggles and disabilities. Students with autism spectrum disorder (ASD) often struggle with joint attention and off-task behavior, often a result of a primary need for sensory input in order to maximize their ability to engage with the educational environment and their instructors. In fact, the ability for a student to focus on the information being delivered by the instructor is universally considered a core academic survival skill (Richards, L.C., et al., 2010). In addition, student on-task behavior is a strong predictor of educational success (Hulac et al., 2022).

The physical school environment is one area of focus for determining the most beneficial ways educators are able to provide students with the best opportunity to succeed. Numerous authors have explored the effects of the physical learning environment as a method to improve learner engagement and success (Attai et al., 2021; Dargue et al., 2022; Leifler et al., 2021; Olson et al., 2019). More specifically, studies have looked at the benefits of alternative seating options and their effects on students with autism (Brennan, J., & Crosland, K., 2021; Krombach, T., & Miltenberger, R., 2020; Shilling, D.L., & Schwartz, I.S., 2004).

As a special education teacher currently working in an autism/intellectual disability program, I have struggled each day to make the learning environment more accommodating to my students. Alternative seating is a simple, relatively inexpensive place to begin modifications in the classroom. Most general education teachers are very open to alternative seating options in their classrooms, both for their general education students and for students who qualify for

special education services. It was my hope that by introducing alternative seating, my students with autism spectrum disorder would become more focused and more engaged during instruction times as a result of their sensory needs being addressed. I began my research in a special education room environment where I was able to closely monitor the alternative seating effect and control any other independent variables. I chose the stability ball chair because most students in my caseload qualify for occupational therapy services and have some experience with the use of therapy balls. Further instruction was needed on appropriate behavior with the chairs during learning times, but my hope was that choosing a piece of equipment with which they were somewhat familiar would increase acceptance during the study.

Previous Research

I began my information search by looking into the effects of alternative seating in general in the educational environment. I explored broadly focused studies which looked at different types of changes that could be made to the physical environment of the classroom. I next looked at more focused studies regarding alternative seating options and then, more specifically, stability ball chairs.

As I narrowed my search, I looked for more information on the use of alternative seating with students with autism and found multiple previous studies, but none that had the exact participant age range and setting I planned to use for my study and inconsistent results across studies. A study by Begatell et al. (2010) assessed increased in-seat behavior when the use of stability ball chairs was implemented for 6 children with autism in their first year of primary school. An additional study that focused on the use of stability ball seating was performed by Schilling and Schwartz (2004). Four children with autism of preschool age were observed to determine the benefit of therapy balls when compared to classroom chairs (Dargue 2021).

Another study's participants included three children aged 4-8 years with an ASD diagnosis at a private applied behavior analysis (ABA) clinic (Brennan 2021). A study by Umeda and Deitz (2011), investigated the use of therapy cushions as a balance/proprioception modification. Inflated Dis 'o' Sit Junior therapy cushions were used with two children with autism and the resulting on-task and in-seat behavior was observed (Dargue 2021). My study focused specifically on five students ages 7 (2nd grade) to age 10 (5th grade) using a stability ball chair in the special education environment during 1:1 instruction.

Multiple authors have indicated that stability balls and other types of alternative seating show promise for increasing engagement and on-task behavior for students with autism within the academic classroom environment. "Stability balls may function as an abolishing operation by providing a student with the opportunity to move in a manner that is less disruptive and reducing the reinforcing effect for larger, more problematic movements" (Hulac et al., 2022, p.545). Fulfilling a student's need for sensory input has shown promise in causing a positive effect on on-task and in-seat behavior, which in turn leads to higher academic gains (Hulac et al., 2022). More information must be collected to determine what type of seating consistently shows the desired effects and whether these effects are present across all school environments with all types of students. For more detailed information on past studies related to the physical environment and its effect on students, please refer to chapter 2.

Purpose of the present study

Does the use of a stability ball chair improve engagement and on-task behavior in the elementary school environment in elementary age students with autism within the special education classroom? Determining the answer to this question can give educators more strategies to deliver a more effective education experience to students with autism. Both engagement and

on-task behavior has been linked to academic performance (Richards, L.C., et al., 2010). Having scientific data to support the use of a stability ball chair would give justification for funding such equipment for use in the classroom. Improved classroom performance and academic outcomes would greatly benefit a student with autism's quality of life and functionality as they move into adulthood.

To determine the benefits of using stability ball chair seating, my study used single-subject design. I studied a single, intact group of students with autism on my caseload. Data collection and analysis utilized quantitative research techniques. Each student was observed during instructional time initially using a standard seat, then while utilizing a stability ball chair. Implementation of the stability ball chairs occurred at the same time for all students in the study. Following the observation periods, data was analyzed to identify trends and effectiveness of the intervention.

Quantitative Research: Observation Study

Students were observed during multiple 15-minute periods of one-on-one instruction. For more information regarding the methodology of the study, please refer to chapter 3. Each observation period was divided into 3-minute segments. During each segment, the observer referred to a rating system to score and evaluate the degree to which the student was on-task and engaged. Each segment's score was then calculated based on the evaluator's observations of level of engagement and presence of on-task behavior. A student's level of engagement was rated as absent, low, or high. Point values for on-task behavior were categorized in a similar manner. Score values from each 3-minute segment were then averaged to calculate an overall session score ranging from 0-4. Higher scores were earned for high levels of engagement combined with the presence of on-task behavior.

Results

For each participant, a mean behavior score was calculated for the entirety of the baseline phase. Scores of each session of the intervention phase were then compared to this baseline score. For each participant, 80-100% of scores reported during the intervention phase were higher than the baseline mean score. Mean score values during baseline showed a higher volatility of behaviors and engagement scores ($SD=0.54$) than during intervention ($SD=0.43$). For a more detailed breakdown of data, please refer to Chapter 4.

Discussion

While the degree of improvement varied across participants, an increase in mean scores of all participants indicated that the use of stability ball seating as an intervention for students with autism in the special education classroom during 1:1 instruction should be considered in the academic environment. The stability ball seating showed the potential to fulfill sensory needs of students with autism, which allows them to be more successful in the special education classroom as exhibited by their increased scores based on engagement and on-task behavior. Volatility, future implications, strengths and limitations will also be discussed in Chapter 5.

Chapter 2 – Review of the Literature

New methods and strategies are constantly being trialed and implemented within the academic environment to enhance student learning experiences and to give students the best opportunity to succeed. Students with autism spectrum disorder and other special needs frequently have more challenging behavioral and sensory input needs in the classroom, which need to be addressed to offer an appropriate education. Numerous authors have explored the effect on physical learning environment as a method to improve learner engagement and success (Attai et al., 2021; Dargue et al., 2022; Leifler et al., 2021; Olson et al., 2019). More focused research is needed on the effects of the physical environment, specifically alternative seating, on those students with autism and the direct effects on engagement within the school environment.

Autism and Success in the School Environment

According to current pedagogy, students who qualify for special education benefit from an inclusive education. The 2030 Agenda for Sustainable Development, adapted by the United Nations, sees the right to equal and appropriate education as it applies to all students, regardless of ability or special needs (Leifler et al., 2021). It is necessary to create an environment in the classroom where all students, neurodiverse and neurotypical, have the best opportunity to learn. Rather than attempting to change the student or require the acquisition of specific skills for a student to be successful within the school environment, it is necessary to alter the environment to fulfill the needs of the student (Dargue et al., 2022).

Autism spectrum disorder is one of the most common and well-known neurodevelopmental disorders observed in the educational setting. Autism can be characterized by a range of symptoms with varying severity. Students with ASD often face challenges in several areas including executive functioning, communication, sensory processing, joint

attention, and social skills, in addition to gross and/or fine motor skills. These challenges often affect their ability to function and learn within the general education setting (Schilling & Schwartz, 2004).

Limited research has been conducted on the need for environmental modifications as they relate to academic success for students with ASD. Students with ASD often require physical activity and/or movement to satisfy a sensory need. Fulfilling this sensory need can help the student to meet an optimum state of arousal for them to function adequately and appropriately (Krombach & Miltenberger, 2020). Once sensory needs are met, the student's ability to attend to instruction and on-task behavior improves, allowing the student to learn. Unmet sensory needs have been identified as a possible direct cause for social disengagement and off-task behavior (Schilling & Schwartz, 2004).

To create an appropriate, adequate, and productive environment for a student with ASD, it is necessary for an environment to be created that supplies them with the tools and strategies they need to be successful. Only by creating an appropriate environment that fulfills a student's sensory requirements are educators providing students with the tools they need to succeed and true access to an equal education. Sensory strategies must be implemented to fulfill the student's legal right to an education by providing appropriate modifications based on student needs.

Classroom Environmental Factors

Individuals with ASD face many struggles successfully fulfilling the popularly accepted social norms in any public setting. This is especially true for students as they attempt to maintain focus, be academically successful, and follow the standard behavioral expectations in the classroom environment. Identifying and removing these barriers within the physical environment for individuals with autism is necessary for true inclusion (Dargue et al., 2022). Multiple factors

contribute, negatively or positively, to an individual's ability to appropriately participate within an environment. These factors include, but are not limited to, lighting, type and volume of noise(s) within a space, physical objects within the space, and seating options provided.

Lighting Effects within an Environment

Lighting is a critical component of the physical environment that can impact an individual's participation. Past studies have focused on the use of blacklights, fluorescent light bulbs, and halogen lighting and their effects on student attendance to task and on-task behavior (Dargue et al., 2022). A 2020 study by Derakhshanrad and Piven (2020) investigated the effect of the use of blacklight bulbs on increasing independence with tooth brushing on an 8-year-old female with autism. The study spanned 4 months and at the end of the study period, the subject was independent with tooth brushing. The use of blacklight was combined with the 'try another way' prompting system. Since the use of the blacklight was combined with a novel prompting system, it is not possible to definitively say that the improvement in task performance was due to the blacklight (Dargue et al., 2022).

Another study that focused on lighting and corresponding on-task behavior was carried out by Kinnealey et al. (2012). This study replaced fluorescent light bulbs within a classroom with halogen lights. Similar to the previously discussed study, the lighting change was not the only independent variable changed within the experimental design. Sound absorbing walls had been recently installed which meant that it could not be ascertained that the halogen lighting was independently responsible for improved task engagement for four students with autism (Dargue et al., 2022).

Pence et al. performed an experiment in 2019 which studied the effect of blue light covers on florescent bulbs on four students. This study concluded that the colored covers reduced

on-task behavior in all four students (Dargue et al., 2022). Although the study by Pence et al. failed to produce a positive effect on on-task behavior, it did definitively show that the lighting did have effect on the participants of the study and their on-task behavior.

Effect of Auditory Stimuli within an Environment

Logical reasoning leads us to assume that the most effective learning environment is one that has limited sound distractions allowing students to focus on the verbal teaching of the instructor. Loud, repetitive, unexpected, and otherwise distracting noises have a direct effect on engagement and on-task behavior. The following studies focused on the possible positive or negative effects of auditory stimuli within an environment.

Merlin et al. (2009) designed an experiment to explore whether background music would increase on-task behavior and verbal utterances during a structured play session for five children when compared to the performance of the participants during times with no background music. Four out of five participants produced more verbal utterances during the music phase than the no music phase of the study (Dargue et al., 2022). Minimal differences were observed in on-task behavior with or without the addition of background music providing little proof that background music has a beneficial role on on-task behavior in children with autism (Dargue et al., 2022).

A study performed by Kinnealey et al. (2020; as cited in Dargue et al., 2022) investigated the occurrence of repetitive behaviors across 42 children with autism when the level of classroom noise was quiet (<35 decibels) versus loud (>35 decibels). Kanakri et al. (2017) determined that stereotypical behaviors such as complaining, repetitive speech, hitting, producing loud sounds, and covering of ears occurred more often as the noise level of the classroom increased. Repetitive behaviors detract from a student's ability to remain focused and on-task.

Kinnealey et al. (2020; as cited in Dargue et al., 2022). also examined the effect of installing sound-absorbing walls into a classroom and the corresponding effects on on-task behavior. This study had four participants: students with autism. Classroom noise was measured in decibels and the study demonstrated that as noise reduced, on-task behavior of all four students increased (Dargue et al., 2022).

The studies mentioned above produced a range of results, but most indicated that a direct connection exists between auditory distractions and on-task behavior as it relates to students with autism.

Effects of Physical Objects within an Environment

Most new teachers spend hours debating the most effective and aesthetically pleasing layout for their classroom. Personal details and preferences are often added to create an overall ambiance or to follow a specific theme. Little emphasis is typically placed on how the items included in the classroom will affect sensory processing or if design features will create unnecessary distractions for students and affect their behavior, which in turn directly effects academic performance. Seating arrangements, flooring, wall coverings, desks, computers, and whiteboards are a few of the items within a classroom that can have a positive or negative effect on the teaching and learning process (Stapp, 2018).

A 1989 study by Duker and Rasing (1989) studied the effect of objects within the classroom environment on 3 students with autism. The classroom was modified to remove decorations and unnecessary furniture to create a unicolor environment. The results of the study indicated that the changes made improved on-task behavior in two out of three of the participants while two out of three participants showed a marked decrease in self-stimulation, but only a limited impact was exhibited by the third student (Dargue et al., 2022).

Multiple studies have been conducted that focused on the effect of traditional seating arrangements and the corresponding effect on classroom behavior (Stapp, 2018). Most people are familiar with the traditional layout of seating within a classroom; that of equally spaced rows of identical chairs and desks. Ironically, this arrangement was originally chosen in an environment with no electricity to make best use of the natural light (Stapp, 2018). As we continue to modernize our teaching strategies, it is also necessary that we evaluate the physical environment in which students are placed and required to perform academically.

Effects of Seating Options within an Environment

Many individuals with ASD require varying levels of proprioceptive sensory input. Proprioceptive input refers to how you receive sensory input based on the movement of your body. This input allows a child's sensory needs to be fulfilled, which in turn allows them to function more successfully within their environment. Studies have focused on the importance of fulfilling this specific sensory need in students and how this affects on-task behavior and overall classroom performance.

A study by Begatell et al. (2010; as cited in Dargue et al., 2022) assessed increased in-seat behavior when therapy ball chairs were used for 6 children with autism. Out of the 6 participants, only 1 student with significant vestibular-proprioceptive-seeking behaviors showed an increase in in-seat behavior (Dargue et al., 2022). This means that the remainder of study participants showed no improvement or benefit.

An additional study which also focused on the use of therapy ball seating was performed by Schilling and Schwartz (2004). Researchers observed four children with autism to determine the benefit of therapy balls when compared to classroom chairs. Both in-seat behavior and on-

task behavior were used to determine overall task engagement. All participants showed an increase in on-task behavior when the stability ball was used (Dargue et al., 2022).

Umeda and Deitz (2011; as cited in Dargue et al., 2022) investigated the use of therapy cushions as a balance/proprioception input modification. Inflated Disc ‘o’ Sit Junior therapy cushions were used with two children with autism and the resulting on-task and in-seat behavior was observed. No significant difference was observed in either observed behavior during the duration of the study and the designers concluded that the cushions may not have provided adequate sensory input to produce the desired effect (Dargue et al., 2022).

Overall Effects of Physical Environment

Many types of modifications can be employed to alter the physical environment of a classroom. Limited studies have been performed on the effects of the physical environment and how it directly relates to task engagement in students with autism (Dargue et al., 2022). Many studies have provided inconclusive results or have limited study size or both to present a true measure of the effects produced. The question must also be raised on the sensory needs of the students who participated in the studies. Is there a specific part of the autism population that would more likely benefit from a particular environmental modification? This question remains unanswered currently. This point does not in any way lessen the importance of study and investigation into the modification that could make a large impact on an individual’s ability to succeed in an inclusive environment. It is extremely important that educators can identify modifications to the physical academic environment to improve task engagement for students with ASD which will in turn allow them to perform to their true academic potential (Dargue et al., 2022).

Implications of Alternative Seating in the Classroom

Educators and educational institutes are evaluated based on the performance levels of their students. In addition to creating a welcoming and comfortable classroom, teachers are also tasked with creating an environment to foster academic success. Seating types and options within the physical environment are often an area of very limited focus (Stapp, 2018). Teachers often have little input on the types of seating that are available to their students.

Traditional desks and chairs are typically provided based on aesthetics or cost as determined by a district. Teachers are provided with seating for their classroom based on students' age and grade level. Commonly, not even the student's individual height is taken into consideration (Stapp, 2018). Unfortunately, a student is often required to sit in a chair that is not physically appropriate, much less seating that accounts for a need to fulfill sensory or movement requirements. Yet, traditional classroom furniture continues to be the most common seating option present in academic environments (Attai et al., 2021).

Luckily, this way of thinking is beginning to change. Emerging trends aim to move away from seating arrangements that benefit the educators in the room and towards seating with positive effects for the learners (Stapp, 2018). Alternative seating allows students the ability to move and fulfill sensory needs. By allowing the student to increase their sensory input through movement, alternative seating options allow students to better fulfill their own sensory needs, which lead to fewer behavioral issues, improved attention, and better academic performance (Stapp, 2018).

Types of Alternative Seating

As the popularity of alternative seating begins to rise, additional forms of seating are becoming available. The most commonly utilized types of alternative seating in the academic

environment are standing desks; therapy balls; foot fidgets; and inflated, round discs/cushions (Stapp, 2018).

Standing Desks

Standing desks can be a cost-effective type of alternative seating which allow a student the option of standing or sitting on a tall stool at their discretion during instructional or work time (Stapp, 2018). A study by Minges et al. (2016), examined the use of standing desks and the effects on eight students on the children's physical activity levels, sit and stand behaviors, classroom behaviors, and academic performance. The study recognized that more research is necessary to determine to what extent academic performance is influenced by standing desks, but results suggested that students' time standing increased in all studies (Stapp, 2018). This indicated that when given the option, students preferred to stand at times versus sit continuously throughout the day.

Foot Fidgets/Chair Leg Bands

A study by Hartanto, Kraft, Losif, and Schweitzer (2015) determined that students with ADHD were able to concentrate at higher levels when provided with the option to use a fidget. Foot fidgets are a device that can be added to a traditional chair that allows a student the option of fidgeting with their feet while seated. One such device, the FootFidget, implements a stretchy band connected to the legs of a chair or desk in a continuous loop (Stapp, 2018). Sensory input gives students the ability to concentrate at higher levels (Stapp, 2018). Further study is necessary to determine the effect that foot fidgets have on on-task behavior in the classroom (Stapp, 2018).

Inflated, Round Disc Seat Cushions

This type of alternative seating option utilizes traditional seating with the addition of a round disc, typically inflated with air, with one smooth side and one textured side. The cushions

are placed on a traditional student chair and allow students a natural range of movement and a way to independently increase their sensory input (Stapp, 2018). A study that implemented the use of the Disc ‘o’ Sit inflatable seat cushion indicated that during mathematics instruction time, giving students this alternative seating option had a significant impact on time on- and off-task (Stapp, 2018).

Therapy Balls and Stability Ball Chairs

Therapy balls or ball chairs (with a base) are used as a replacement for traditional seating rather than as an additional tool added to already existing seating. Multiple studies on the use of therapy balls and ball chairs have indicated an increase in students’ attention within the learning environment with the use of therapy balls as an alternative seating option (Stapp, 2018). Therapy balls originated in Switzerland with a program exists called “Moving Students are Better Learners” (Schilling & Schwartz, 2004).

Pros and Cons of Alternative Seating

Limited research has been completed that definitively states that any single type of alternative seating proves beneficial in the educational setting. While evidence is building that points towards types of alternative seating as “a cost-effective intervention that allows children to engage in minimal physical activity while maintaining an optimal arousal level suggested by researchers” (Krombach & Miltenberger, 2020, p.551), more research is needed to justify its universal use in the educational setting.

One relatively consistent finding among current studies is positive student perception towards alternative seating options. When a student survey was included in the study methods of the previously referenced studies, students consistently indicated positive attitudes towards the alternative seating offered. Students with flexible furniture options available to them reported

higher satisfaction with their learning environment than their peers who had only traditional furniture options (Attai et al., 2021). A survey by Stapp (2018) administered to 25 participants following the use of disc seat cushions showed that 76% of students agreed or strongly agreed that the cushions allowed them to participate more actively (Stapp, 2018). In a 2004 study by Schilling and Schwartz, not only students, but teachers both preferred therapy balls vs other seating devices. In fact, teachers and staff unanimously responded to inquiries on the questionnaire that they would prefer all of their students have access to the stability ball seating (Schilling & Schwartz, 2004).

Teachers, though, did raise some concerns as reported in a study by Shilling and Schwartz (2004). For some participants, the bouncing of the studied type of alternative seating, a stability ball, was sometimes distracting to students and teachers in the room (Shilling, 2004). A teacher who reported she found it initially difficult to work with a particular student who was continuously bouncing also reported she was “able to adapt” as she noted a marked improvement in the student’s engagement and social responsiveness during previously nonpreferred table tasks (Schilling & Schwartz, 2004). In one study focusing on the use of only a stability ball, with no base or brake/locking mechanism, low social validity was reported due to participants engaging in distracting behavior such as bouncing and/or moving around the classroom on the balls (Brennan & Crosland, 2021). The same study stressed the importance of establishing guidelines for chair usage and employing prior instructions, modeling, and adult feedback to insure the child used the stability ball in an appropriate and safe manner (Brennan & Crosland, 2021). When used correctly, teachers reported a positive effect in reducing distracting behaviors such as reduction of noise levels and reduction in unnecessary movements during classroom instruction (Hulac et al., 2022).

The use of many types of alternative seating utilized in the classroom today originated in the field of occupational therapy. With this information, it is logical that the use of alternative seating would have additional benefits unrelated to academic performance or on-task behavior. Students spend most of the school day in a traditional academic setting seated for both instruction and independent work time. According to Stapp (2018), most students spend approximately 15,000 hours of their academic career seated in a chair. To promote physical activity and overall general health along with increasing the learning capacity of our students, rather than continuing the structure of a sedentary classroom, students would benefit from opportunities that allowed them the ability to move, walk, squat, perch, and/or lean (Stapp, 2018). Specific benefits may be important to an individual student as well. A participant in a study by Schilling and Schwartz (2004) exhibited increased trunk strength and a decrease in drooling following the study.

Stability Balls in the Classroom

In Switzerland, therapy balls are currently being used as the primary seating in over 5000 classrooms (Schilling & Schwartz, 2004). A private school in Florida reported overall improvement in work habits, particularly in attention and classroom behavior when students began sitting on therapy balls (Schilling & Schwartz, 2004). Multiple studies have been conducted on the use of therapy balls in the clinical setting, general education classroom, and for use with the general student population and/or for use with students with diagnosis of disorders such as ADHD or ASD. Popularity is growing in mainstream and home use as well. The stability ball has been referenced as the most popular type of alternative seating (Hulac et al., 2022).

Description and History of the Stability Ball Chair

The stability ball can be referred to by a variety of names; therapy ball, yoga ball, Swiss ball, and birthing ball (Hulac et al., 2022). A stability ball is a large, inflatable ball made of rubber available in a variety of sizes, textured designs, and colors. The stability ball was traditionally used in areas of physical therapy, occupational therapy, rehabilitations, and fitness, but has more recently been investigated for use in academic and clinical settings to lesson distracting motor movements in children identified as hyperactive (Hulac et al., 2022). Improvements have been reported in such areas as behavioral inhibition, academic understanding of lessons, penmanship, and organization skills (Hulac et al., 2022). More specifically, studies have focused on such educational outcomes as in-seat behavior, on-task behavior, effects on sensory input, and academic success (Hulac et al., 2022).

Stability balls and stability ball chairs come in a variety of sizes and styles. It is important to identify the specific seating used to determine the effectiveness of any given form of alternative seating. The previously mentioned studies that referenced the use of ball chairs utilized many variations. Like many types of alternative seating, ball seating is low cost and accessible to most (Krombach & Miltenberger, 2020). Since this type of seating is widely available, the exact type of stability ball or ball chair utilized should be tailored to the study participants. For example, a study by Brennan and Crosland in 2021 utilized “a 38cm rubber stability ball stabilized upon a black base made from plastic that was 20 inches wide from one side of the wheels to the other. The stability ball chair had two lockable rolling wheels and a 2-foot tall stable back piece” (Brennan & Crosland, 2021, p.1080). A slightly different variety with cylindrical feet to prevent the balls from rolling when not in use was used in a 2019 study (Olson et al., 2019). Metz et al. (2020) thought it important to note in a 2020 study that occupational

therapists should share in the decision of when ball chairs would be appropriate and beneficial for a specific student. Thus, input from an occupational therapist may be beneficial in determining the correct style and size of chair to be used for an individual student.

Previous Study Results

Multiple studies exist with varying participant focus and varying results on the effectiveness of stability balls chairs. The following are results of studies which focused on the use of stability ball chairs within an academic setting.

General Education Focus

In a study by Metz, et al. in 2020, results indicated that the use of therapy ball chairs did not lead to a significant change in productivity within the classroom. This study included participants in a general education classroom of first grade students. The intervention focused on measuring three outcomes. These outcomes included handwriting legibility, student behavior, and classroom productivity.

In a 2019 study by Olson, et al. student behavior was compared while seated on stability balls with cylindrical feet versus traditional seating. Participants in the study were 20 second graders in a general education classroom in a public school in the Midwest. Individual data was collected on student writing fluency and classroom data was collected focusing on behavior observations. Results reported in this study indicated that the use of stability balls produced no change in student behavior. Writing development across the time period of the study was consistent with typical development for students in second grade (Olson et al., 2019). Evaluation of the results caused the author to remark, “While the use of stability balls did not have a negative impact in this case, it is important for educators to not waste time with interventions that do not have an impact” (Olson et al., 2019, p.211).

A study performed by Hulac, et al. in 2022 explored the use of stability ball seating in a general education classroom of 24 third-grade students. Although students reported they found the stability ball to be desirable and easy to use, study results indicated that the students were on-task less frequently when sitting on a stability ball chair.

ASD Participant Focus

Brennan and Crosland (2021) focused on the effects of a stability ball chair in a clinic setting for three children with ASD ranging from age 4 to age 8. Results showed varying results among the participants in the areas in-seat and on-task behavior during one-on-one instruction. While all participants experienced improvement in the areas of in-seat and on-task behavior, to what degree this evidence was supported varied between participants. It was noted that the greatest in-seat behavior increase was seen with the oldest study participant (Brennan & Crosland, 2021).

In a frequently referenced study from 2004, Schilling and Schwartz reported substantial improvements in engagement and in-seat behavior for participants when seated on therapy balls. Schilling and Schwartz emphasized that a connection exists between sensory processing deficits in children with ASD and associated deficits in their ability to attend, engage in play and sustain interaction (Schilling & Schwartz, 2004). They claimed that therapy balls may be a beneficial strategy to reach and maintain an optimal state of arousal and allow students with ASD to better follow expectations in the classroom, which would, in turn, increase academic performance (Schilling & Schwartz, 2004). Four participants ranged from age 3-4 years, and all participated in an integrated preschool classroom for 12 hours per week and a specialized program for students with ASD for 8 hours per week. Interventions occurred during a variety of activities including small group table time, reciprocal play activities, and group circle time. Specific

activities were chosen by the teacher for each individual participant (Schilling & Schwartz, 2004). Because the study was carried out in multiple settings and during a variety of activities with students of varied ability levels, the authors implied that this type of alternative seating may be universally beneficial (Schilling & Schwartz, 2004).

Multiple authors have indicated that stability balls and other types of alternative seating show promise for increasing engagement and on-task behavior for students with autism within the classroom environment. “Stability balls may function as an abolishing operation by providing a student with the opportunity to move in a manner that is less disruptive and reducing the reinforcing effect for larger, more problematic movements” (Hulac et al., 2022, p.545). Fulfilling a student’s need for sensory input has shown promise in causing a positive effect on on-task and in-seat behavior, which in turn leads to higher academic gains (Hulac et al., 2022). More data and information must be collected to determine what type of seating shows the desired effects and whether these effects are present across all school environments with all types of students.

Does the use of a stability ball chair improve engagement and on-task behavior in the elementary school environment in elementary age students with autism within the special education classroom? Determining the answer to this question will give educators more strategies to deliver a more effective education to students with autism. Having scientific data to support the use of a stability ball chair would give justification for funding such equipment for use in the classroom. Improved classroom performance and academic outcomes would greatly benefit a student with autism’s quality of life and functionality as they move into adulthood.

Chapter 3 – Methods

Previous studies have shown varying success with the use of the stability ball chair seating in a variety of settings. This study reports data collected from 5 participants within a special education classroom and examines the effects of a stability ball chair on engagement and on-task behavior in the elementary school environment in elementary age students with autism spectrum disorders.

Study Participants

Study participants were selected from a convenience sample of 5 students from my special education caseload. Selected students had an educational diagnosis of autism, ranged in age from 7-10 years old (2nd – 5th grade) and attended the same Title I elementary school. In addition, selected students received daily 1:1 specially designed instruction within the special education setting. Parent and student written consent (refer to Appendix A) was secured prior to initiation of the study. To maintain anonymity of study participants, each student was randomly assigned a numerical identifier. Individual privacy was maintained throughout all published, written, and recorded data resulting from the study.

Table 1

Participant Demographics

Participant	Gender	Age (years)	Grade	Primary Academic Disability	Minutes of Day Spent in Special Education Classroom	Area of Instruction During Observations
1	Male	7	2	Autism	300	Math
2	Female	10	5	Autism	60	Math
3	Male	9	4	Autism	80	Literacy

4	Male	10	4	Autism	100	Math
5	Female	9	3	Autism	320	Literacy

Participant 4

Participant 4 successfully completed the five-day baseline data collection phase but was not present for the entirety of the intervention phase. Following the fifth day of intervention, parents opted to unenroll participant 4 from the district to pursue the option of homeschooling.

Study Setting

Participants of the study attended a Title I elementary school which housed grades Kindergarten through 5th grade. Approximately 260 students attended the school at the time of the study. Of the student population, approximately 70% of students qualified as economically disadvantaged and approximately 12% of students were English language learners. Roughly 24% of students qualified as students with disabilities. Specific participants of this study had current placement within an autism and intellectual disability (ID) program within the special education department. Student inclusive participation within the general education environment varied by student based on ability levels and meaningfulness of time spent with their general education peers. All study participants received 1:1 specialized instruction within the special education classroom.

Observations took place during 1:1 instruction within the special education environment with a special education instructor. Observations were recorded at 3-minute increments during approximately 15-minute total instructional periods. Instructional periods varied in subject matter and time of day. Subject matter included mathematics and literacy (writing, and/or reading) lessons. Sessions occurred throughout the school day between 9 a.m. and 2 p.m.

Participants joined the instructor at a table located in the back of the special education classroom. This specific environment was chosen to limit factors that may interfere with student engagement and on-task behavior. External factors could be better controlled within this separate educational environment.

Research Methods

To determine the benefits of using stability ball chair seating, my study used single-subject design. Data collection was by quantitative research. Students were observed during multiple, approximately 15-minute periods across 3 weeks during one-on-one instruction. Each observation period was divided into 3-minute segments. Interval recording, “the occurrence or nonoccurrence of the behavior is recorded within very short periods of time”, was implemented (Richards, S.B., et al., 1999). During each segment, the observer used a rating system to evaluate whether off-task behavior was present or whether the student remained on-task. A standardized data collection form was utilized during each observation period (refer to Appendix B).

Data collection began during a baseline phase, when students were observed prior to the introduction of the stability ball seating. During the baseline phase, students utilized standard classroom seating. The baseline phase lasted 5 days and established a baseline standard for each individual students’ performance levels as they related to on-task behavior and engagement.

Following the baseline phase, the intervention phase was implemented by the introduction of the stability ball chairs during 1:1 instruction. Students received one day of instruction on expectations of the use of the stability ball chairs. Instruction was structured through the use of a social story (refer to Appendix C). Specific expectations helped to ensure the safety of students during the use of the stability ball chairs and limited distractions caused by the alternative seating. Students were required to use the stability ball chairs during the

observation periods. The intervention phase lasted 10 days. If a study participant refused to use the stability ball seating during an observational period, the instructor provided one additional opportunity for the participant to use the seating later in the day at a separate instructional period. If refusal continued, this warranted designation as off-task behavior during the corresponding time interval(s).

Data was compared from the baseline phase to the intervention phase to determine if ratings improved, stayed the same, or worsened with the use of alternative seating intervention. Ratings of on-task behavior and engagement were assigned point values and charted along x-y axis in the form of a line graph. Data from the baseline phase and intervention phase was differentiated along the x axis.

Independent Variable

The independent variable appears along the x axis of the line graphs. The independent variable of the study was the type of seating utilized. During the baseline phase, students continued to use standard classroom seating. During the intervention phase, students used the stability ball chairs.

Dependent Variable

The dependent variable represented the target behaviors and appears along the y axis of the graphs. The dependent variable was a numerical representation of the students' level of engagement and on-task behavior during the observed period of 1:1 instruction. The resulting behavior of the intervention represented "the relationship between stimuli in the environment and the subsequent responses of individuals" (Richards, S.B., et al., 1999).

Definitions

Standard Classroom Seating

During the baseline phase of the study, student participants continued the use of standard table chairs constructed of a welded frame with tubular steel legs and a tubular steel back-rest tube and two welded, heavy-gauge steel leg brackets. The seat of the chair consisted of a shell molded of high-density polyethylene.

Stability Ball Chair

The stability ball chairs utilized in this study consisted of a removable exercise ball, a chair base with back support bar, a metal ball holding bar, and four caster wheels (two lockable). The exercise balls were inflated per manufacturer instructions.

Expectations of Stability Ball Chair Use

Prior to the intervention stage of the study, participants received one 20-minute period of focused instruction on the proper use of the stability ball chair seating through the use of a social story (refer to Appendix C). Students were required to have their feet maintain contact with the floor and their backside maintain contact with the stability ball at all times during use to ensure safety. The two lockable caster wheels were engaged during usage. If a student did not follow expectations for use during an observation period, verbal prompts were provided by the special education instructor. If expectations continued to not be met, this warranted designation as off-task behavior during the corresponding time interval.

Level of Engagement

Absent: Student displayed no interest in materials and/or subject matter delivered by instructor. Materials provided may have been used in ways other than intended. The student's eye gaze and/or body position was directed at instructor or materials being presented less than 50% of the time. The student did not respond to inquiries or instructions.

Low: Student showed some interest in materials and/or subject matter delivered by instructor. The student's eye gaze and/or body position was directed at the instructor or materials at least 50% of the time. The student responded to inquiries, but answers were short and/or limited and may have displayed little understanding of the subject matter.

High: Student showed marked interest in subject matter and used materials as intended. The student's eye gaze was on instructor consistently, more than 75% of the time, when information/instruction was being delivered and on materials or activities as appropriate and instructed. Student responded to verbal inquiries from instructor for actions and/or responded appropriately to questions regarding subject matter to demonstrate understanding.

On-task and off-task behavior

On-task behavior was defined as “eyes on the teachers or seatwork being done, engaged in reading, making appropriate comments, or writing down answers as appropriate for the specific task” (Richards, L.C., 2010 p.555). Off-task behavior included any behavior that was not considered to be on-task. Off-task behaviors included, but were not limited to, student eye gaze directed away from instructor or materials, student left seat without permission, used materials in ways not instructed or intended by instructor, talked off subject, passively sat, refused to participate in learning, exhibited an inability to follow expectations of seating use, and/or inappropriate or unsafe body movements. The intervals were rated using modified interval recording for on-task behavior in three categories – no off task behavior, mild off task behavior, and severe off-task behavior.

Data Analysis

Data was collected and charted along an x-y axis in the form of a line graph. An x-y line graph is “the typical line graph used to graphically depict the quantitative data collected in single

subject research” (Richards, S.B., et al., 1999 17). Data from the baseline phase and intervention phase was differentiated along the x axis. Results were analyzed visually and quantitatively to determine if a significant difference exists between the baseline and intervention phases of student performance.

Chapter 4 - Results

To determine the effects of using stability ball chair seating for the participants of this study, the students were observed during multiple, 15-minute sessions across a period of 3 weeks during one-on-one instruction within the special education environment. As discussed in Chapter 3, each observation period was divided into 3-minute segments to utilize the method of modified interval recording for on-task behavior. During each segment, the observer used a rating system to evaluate whether off-task behavior was present and to report the participant's level of engagement. A standardized data collection form was utilized during each observation period (refer to Appendix B).

Each segment's score was then calculated based on the evaluator's observations of level of engagement and presence of off-task behavior. A student's level of engagement was rated as absent, low, or high. Participants gained higher point values for higher levels of engagement during each recording interval and a lower point value if the evaluator observed a lower level of engagement (refer to table below). Participants received lower scores if off-task behavior was observed. Off-task behavior was categorized as not present, mild, or severe (refer to table below). Score values from each 3-minute segment were then averaged to calculate an overall session score ranging from 0-4. Higher scores were earned for high levels of engagement combined with the absence of off-task behavior.

Table 2

Score Determinations

	Level of Engagement			Off-Task Behavior		
Observation	Absent	Low	High	Not Present	Mild	Severe
Score	0 points	1 point	2 points	2 points	1 point	0 points

Observations of Participants

Results of Participant 1 direct observations of engagement and off-task behavior during math instruction are presented in Figure 1. Following implementation of the stability ball chairs, session scores increased from a mean of 2.68 (SD=0.41) during initial baseline to a mean of 3.2 (SD=0.61) during intervention phase. Data analysis for Participant 1 demonstrated a marked improvement in session scores in the initial five days of intervention. Following the initial period of improvement, scores began to decrease and return to scores similar to those observed during the baseline period of observation. 80% of intervention sessions scored higher than the mean baseline score.

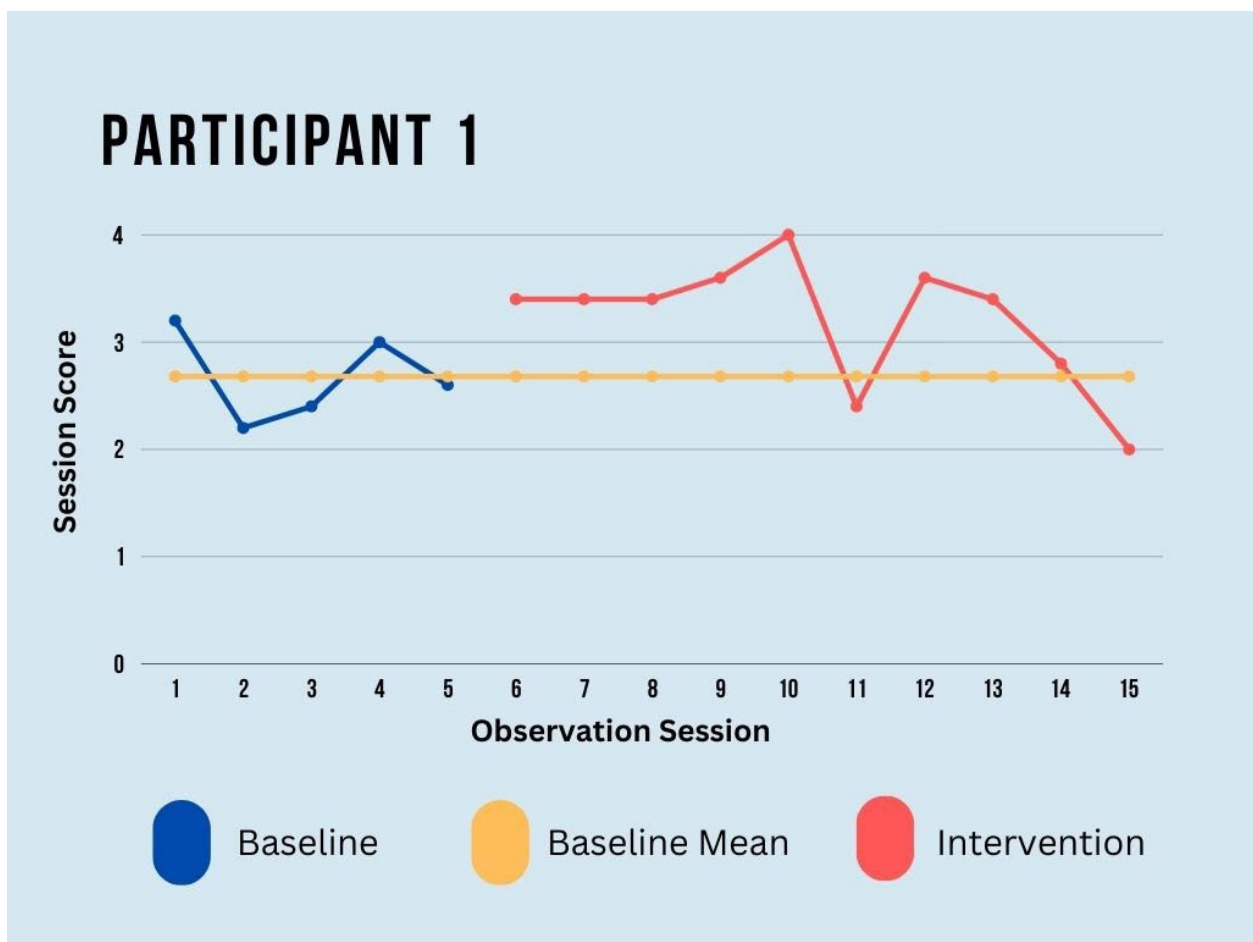


Figure 1 Session Scores for Participant 1 (Math)

Results of Participant 2 direct observations of engagement and off-task behavior during math instruction are presented in Figure 2. Participant 2 exhibited a mean score of 2.2 (SD=0.47) during baseline observations, followed by a mean of 3.46 (SD=0.34) during intervention with the stability ball seating. Intervention phase scores were consistently higher than baseline phase scores for the first eight days followed by a decrease for the remaining two days. 100% of intervention sessions scored higher than the mean baseline score.

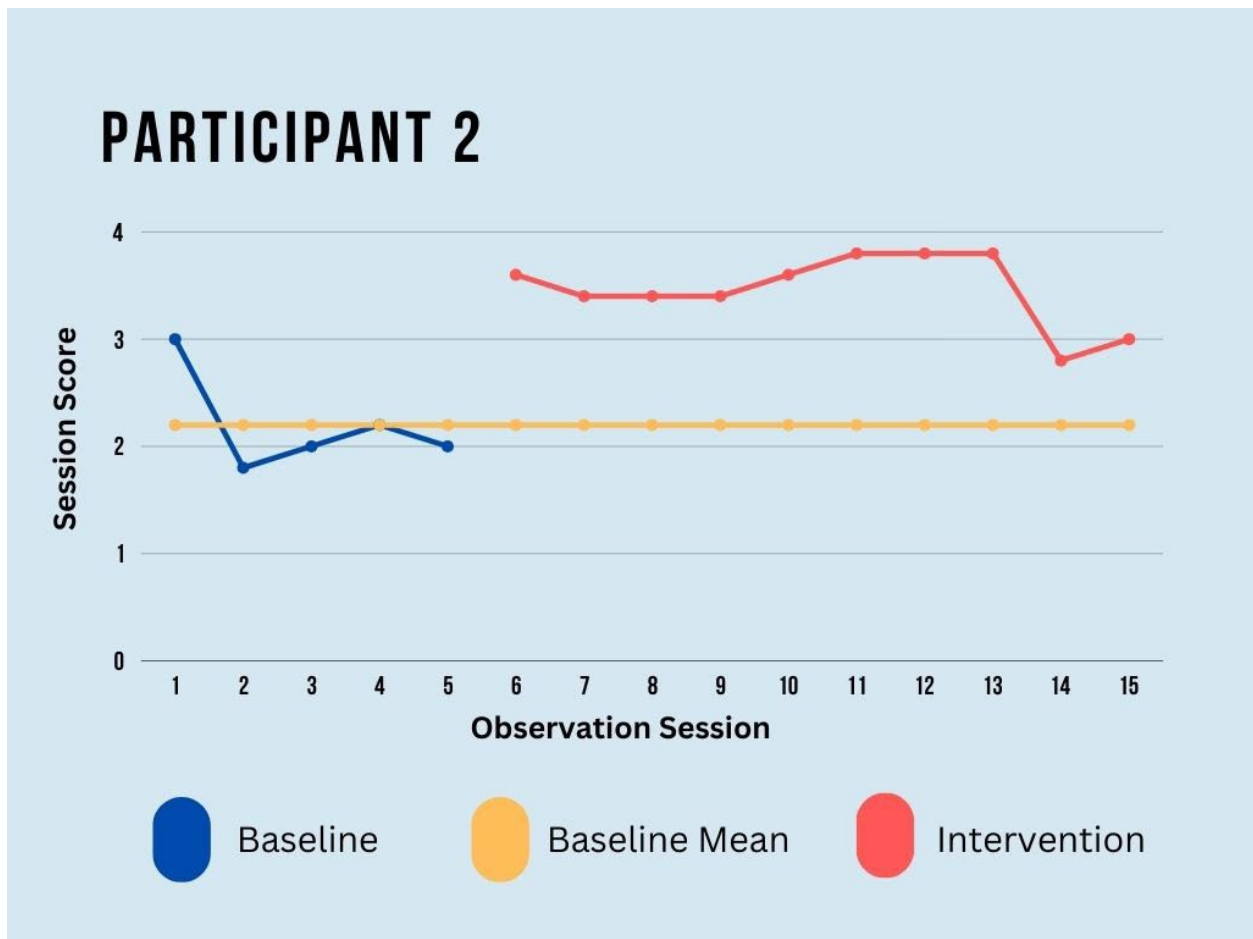


Figure 2 Session Scores for Participant 2 (Math)

Results of Participant 3 direct observations of engagement and off-task behavior during literacy instruction are presented in Figure 3. During baseline phase, Participant 3 demonstrated a mean score of 3.44 (SD=0.38), followed by a mean score of 3.58 (SD=0.34) during intervention utilizing the stability ball seating. While Participant 3 showed the smallest increase

in mean average score (0.14), Participant 3 also exhibited the least volatile scores during both periods of observation ($SD=0.34$) across all participants. 80% of intervention sessions scored higher than the mean baseline score.

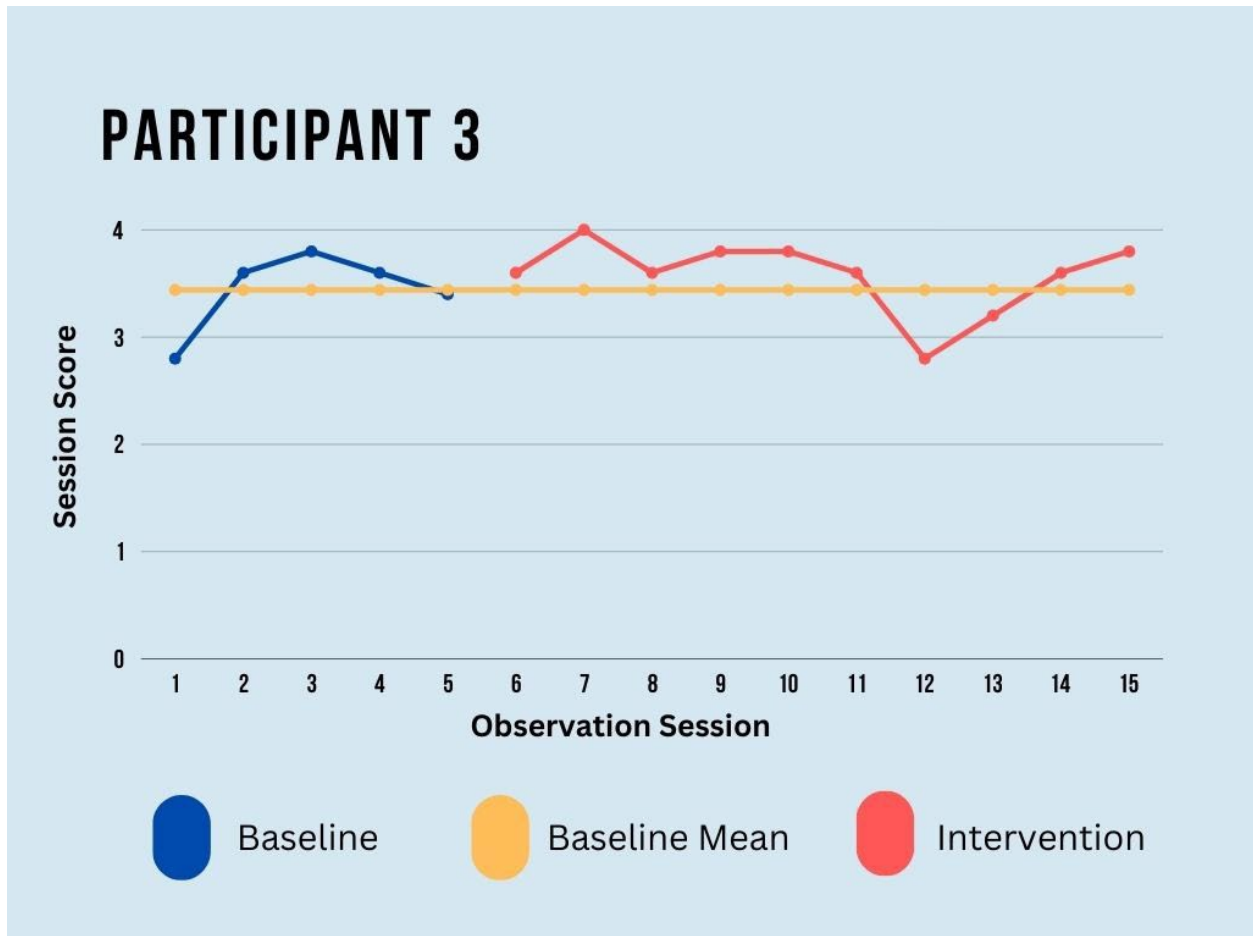


Figure 3 Session Scores for Participant 3 (Literacy)

Results of Participant 4 direct observations of engagement and off-task behavior during math instruction are presented in Figure 4. Participant 4 exhibited the most volatile scores across all participants ($SD=0.86$) across all sessions. During baseline phase, Participant 4 earned a mean score of 2.44 ($SD=0.88$), compared to a mean score of 3.52 ($SD=0.46$) during the limited five days of participation in the intervention phase, most significantly in the baseline phase. 100% of intervention sessions scored higher than the mean baseline score.

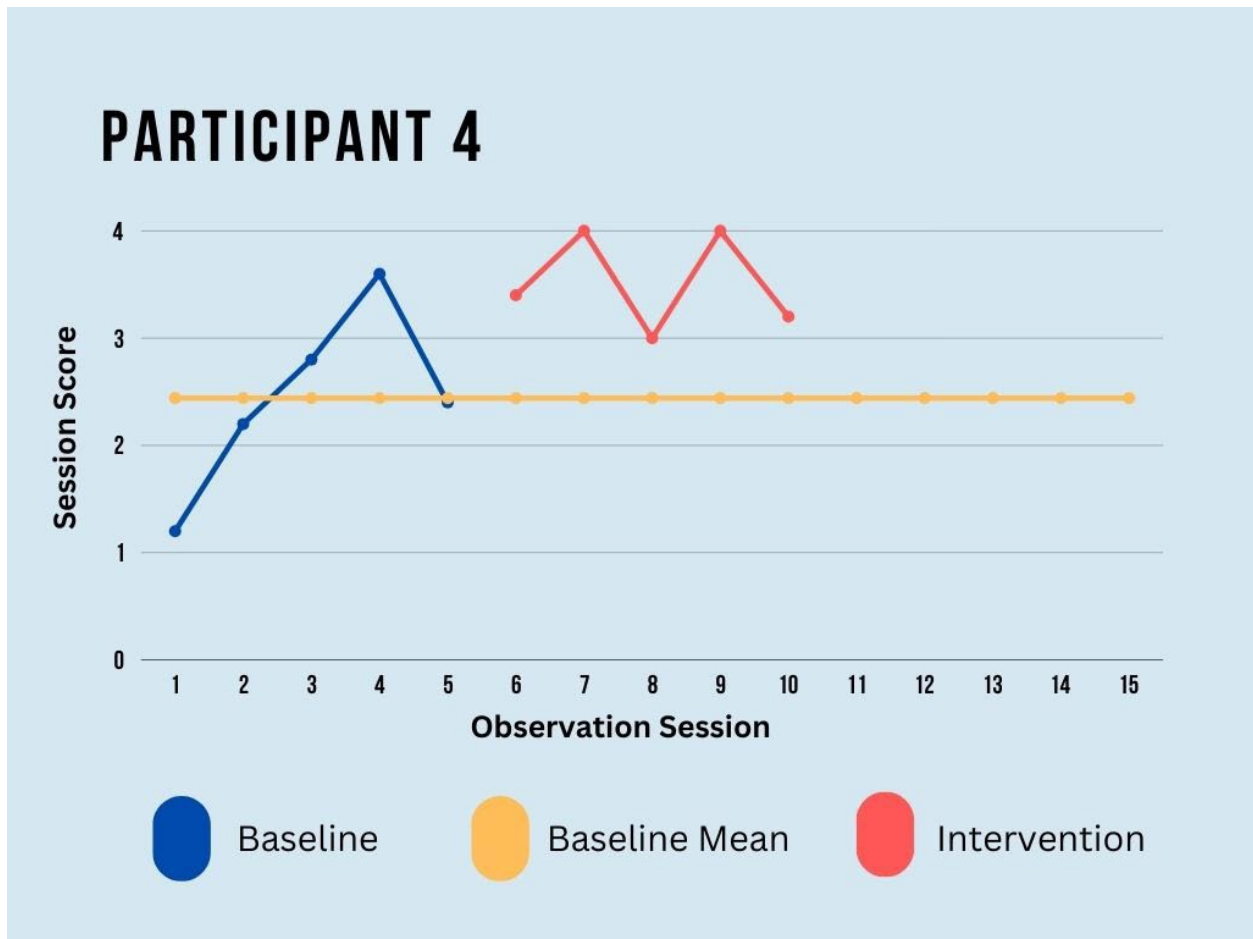


Figure 4 Session Scores for Participant 4 (Math)

Results of Participant 5 direct observations of engagement and off-task behavior during literacy instruction are presented in Figure 5. During baseline phase, Participant 5 scored a mean of 2.72 (SD=0.58) across the five-day period. During the ten-day intervention phase, Participant 5's mean score was 3.3 (SD=0.42). 100% of intervention sessions scored higher than the mean baseline score.

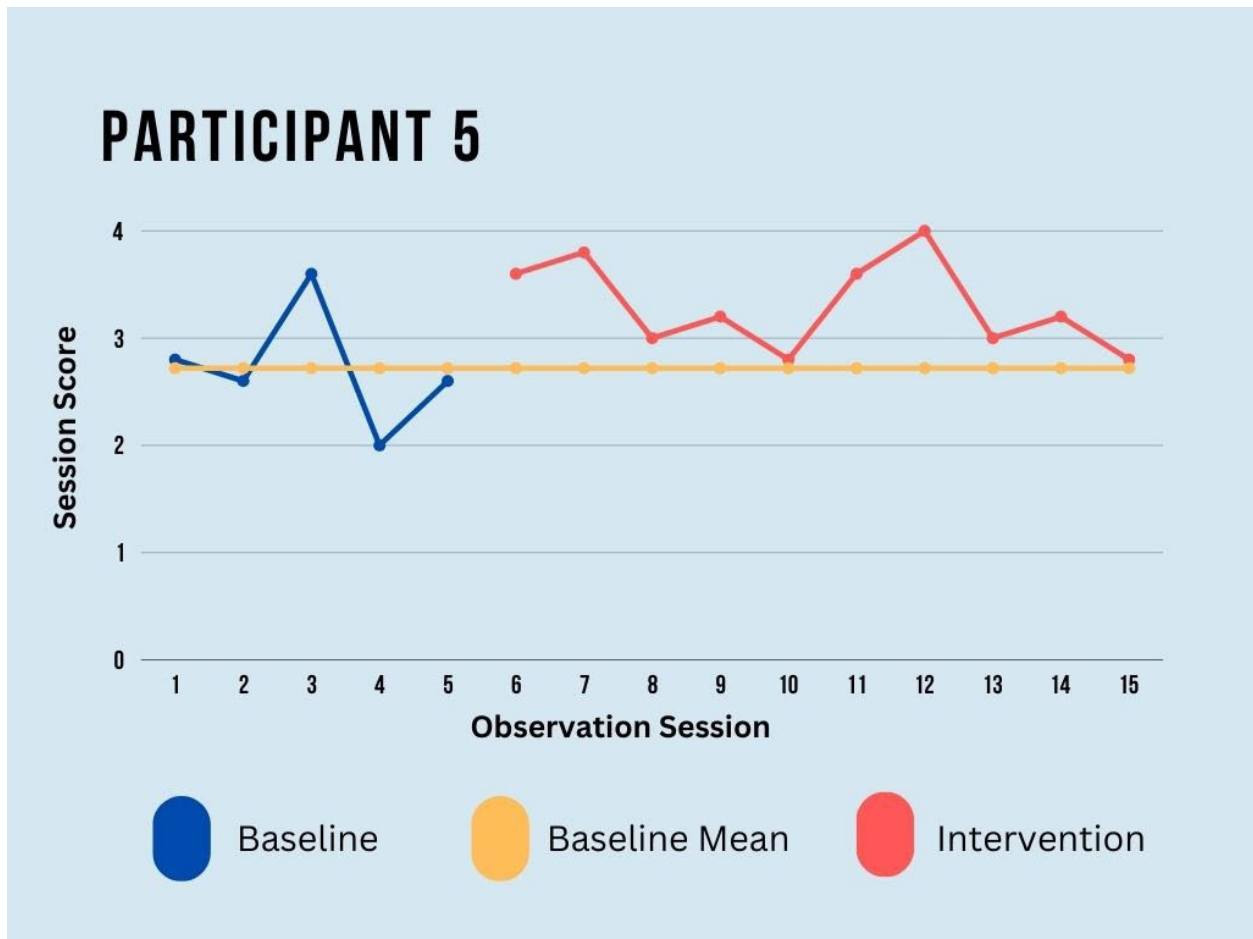


Figure 5 Session scores for Participant 5 (Literacy)

Across all five participants, mean score values during baseline showed a higher volatility of behaviors and engagement scores ($SD=0.54$) than during intervention ($SD=0.43$). All 5 participants displayed higher mean behavioral score during their intervention phase when compared to their baseline mean behavioral score. Across all participants, 92% of intervention sessions scored higher than the participant's mean baseline score.

Chapter 5 - Discussion

Interpretation of Results

This study observed 5 participants and analyzed the recorded scores of the students' level of engagement and on-task behavior during individualized instruction in the special education environment to determine the efficacy of the use of stability ball chairs. Comparison of data collected during the baseline phase, when students continued to utilize standard classroom seating, to the intervention phase, the introduction of stability ball chairs, demonstrated improvement in mean scores across all participants. On-task behavior and engagement are essential to academic success for students as their ability to pay attention to educationally relevant stimuli is directly related to higher academic achievements (Hulac et al., 2022).

While the degree of improvement varied across participants (Participant 3: 4% - Participant 2: 57%), an increase in mean scores of all participants indicates that the use of stability ball seating as an intervention for students with autism in the special education classroom during 1:1 instruction should be considered in the academic environment. It should be noted that while Participant 3 showed the lowest increase in mean scores, he also demonstrated the least variable scores across all observations (SD 0.34) which may indicate that, in general, his behavior is less volatile. This hypothesis can also be seen in the data of Participant 2 who showed the largest percentage increase in mean scores between the baseline and intervention phase (57%) and also demonstrated the second most volatility of behavior scores (SD 0.69). In fact, Participant 2 showed lower deviation in scores only when compared to Participant 4 who did not complete the entirety of the intervention phase, which may have contributed to the higher standard deviation of his scores (0.86). This analysis of data may indicate that the stability ball

seating could be expected to have a more significant impact on those students who, in general, exhibit more volatile behaviors.

As previously discussed, students with ASD often require physical activity and/or movement to satisfy a sensory need. When their sensory needs are fulfilled, they may be more able to be successful in the classroom and remain engaged and on-task (Schilling & Schwartz, 2004). After reviewing the data of this study, it can now be hypothesized that the students with more volatile behaviors during instruction may benefit the most from the intervention of the stability ball chairs. More data would need to be collected to support the connection between volatile behaviors and a higher need for sensory input.

Implications for Educational Practice

Based on the behaviors of participants recorded in this study, it can be hypothesized that stability ball chairs are a valid and beneficial intervention for improving engagement and on-task behavior in the elementary school environment in elementary age students with autism within the special education classroom. Data further supports the idea that more significant results may be seen in students with more volatile behaviors and higher movement/sensory input needs. Stability ball seating offers a relatively inexpensive and less time intensive intervention once students have received instruction on proper use.

Strengths of Study

This study took place within the special education environment, which limits many of the distractions which occur in the general education environment. By limiting these external factors, this study was better able to attribute the differences observed relating to engagement and on-task behavior more directly to the implementation of the intervention, the use of stability ball seating.

Limitations of Study

The validity of the study was limited by the subjectiveness of the studied dependent variables; engagement and on-task behavior. These desired outcomes and the recorded levels were based on the observer's subjective opinion of what was occurring during the instruction periods. In addition, due to the small sample size of the study, results cannot be generalized to larger populations. Similarly, since the setting of this study was limited to the special education environment, it is not possible to make generalizations across all school settings. The limited time period during which data was collected may also represent a limitation of the study as effects of the intervention may increase or decrease over a longer period of time. Longer periods of time also could better address the question of whether there is a novelty effect present with some students, with the intervention's initial improvement gradually decreasing over time.

Implications for Future Research

Future research is necessary in order to replicate and confirm the results of this study across larger populations. More research also is needed to help correlate the types of behaviors seen in a student with the degree of success of the intervention. As discussed in Chapter 2, previous studies have shown that stability ball chairs are not successful in increasing on-task behavior and engagement to all students in all environments, thus more research remains to be done to determine where and for whom the stability ball seating is most appropriate and beneficial. Data for this study was collected during individualized 1:1 instruction and further study may be necessary to see if the stability ball seating and movement of the student detract from the learning environment of other students if the alternative seating were to be introduced into the general education classroom as demonstrated in other previous studies such as Hulac et al. (2022).

Conclusion

Providing interventions in an effort to increase a student's success in the classroom is a necessary practice for all teachers, but especially those who interact with students who have complicated and varied needs such as students with autism. Results of this single-subject study and analysis of the quantitative data collected indicate that stability ball seating may be beneficial for students with autism, especially those who display a high need for movement and sensory input. As demonstrated in this study, the stability ball seating increases on-task behavior and engagement, which directly affects a student's academic performance, leading to better academic outcomes.

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Appendices

Appendix A Consent Form



OFFICE OF SPONSORED PROGRAMS

Effectiveness of Stability Ball Seating in Special Education Classroom in Students with Autism

Parental Consent for your Child to Participate in Research

Purpose of the research: Kimberly Brewer, is conducting a research project on the effects of stability ball chairs on engagement and on-task behavior in elementary aged students with autism in the special education classroom. This project is being supervised by Tomas Fischer and Stacey Skoning from the Department of Education. By conducting this research, we hope to learn whether stability ball seating allows students with autism to fulfill their sensory needs and engage more successfully during one-to-one instruction within the special education environment. Your child is being invited to participate in this research because they currently receive one-to-one specialized instruction within the special education classroom and have an educational diagnosis of autism and are between the ages of 6-11 years. This consent form contains important information about this project and what to expect if you decide to provide permission for your child to participate. Please consider the information carefully. Feel free to ask questions before making your decision.

Procedures: Your child's participation will involve the use of stability ball seating during one-to-one instruction within their special education classroom. Students will be observed during multiple, approximately 15-minute periods, across 2-3 weeks during their specially designed instruction with their current case manager.

Time Involvement: Your child's participation will take approximately 15 minutes daily for 2-3 weeks during their regularly scheduled instructional time within the special education classroom.

Risks & Benefits: The risks associated with this study include a possible decrease in engagement and/or on-task behavior during work times and possible injury due to the use of alternative seating. To minimize risk of physical injury, students will be instructed on the appropriate use of the stability ball seating. The benefits to participation include increased engagement and/or on-task behavior leading to increased academic gains. The findings from this project will provide information on the effects of stability ball chairs

with students with autism as it relates to engagement and on-task behavior within the special education environment.

Privacy & Confidentiality of your Information: The results of this research study may be presented at scientific or professional meetings or published in scientific journals. Your child's individual privacy will be maintained in all published and written data resulting from the study. Data collected will contain no personal identifiers of the study participants. Each participant will be randomly assigned an identification number prior to observations taking place. Data will be stored electronically within a password protected database. Any hard/paper copies of data collected will be stored within a locked file cabinet. Data will be destroyed 3 years following the completion date of the study.

Use of Data for Future Research: Identifiers will be removed from information collected from your child for this project. After identifiers are removed, the information may be used for future research studies or shared with other researchers without additional parental consent from you.

Right to Withdraw from the Research: Your child's participation in this research is completely voluntary. You have the right to choose whether or not your child will participate, and you have the right to withdraw from participation at any time without loss of any service, benefits, or rights you would normally be entitled to. If you decide that you do not want your child to participate in this study, your choice will have no effect on your child's academic status or class grade(s).

Questions about Research Study:

The person in charge of this study, Kimberly Brewer, with the University of Wisconsin Oshkosh, Department of Education can be contacted at any time prior or during this study. If you have questions, suggestions, or concerns regarding this study or you want to withdraw from the study please use the following contact information:

Phone: Text Redacted

Email: Text Redacted

Independent Contact for Reporting Concerns about Research:

If you have any questions, suggestions or concerns about your child's rights as a volunteer in this research, contact staff in the University of Wisconsin Oshkosh Institutional Review Board Office (IRB) at 920-424-3215 or IRB@uwosh.edu.

Consent:

Participation in this research is voluntary. Your signature below indicates that you have read this form and that all questions have been answered to your satisfaction. A copy of this consent form will be provided to you.

Parent or Legal Guardian Signature: I agree to allow my child to participate in this research.

Print Name of Child

Print Name of Parent/Legal Guardian

Signature of Parent/Legal Guardian

Date

By having your child write their name below, you indicate that you have talked with your child about the study and that any questions or concerns have been addressed. Your child's name written below serves as their consent to participate in the study. If your child is not able to write their name, please provide your initials as documentation of discussion.

Printed Name of Child
(print name)

Parent Initials (if child is unable to
print name)

Appendix B Data Sheet

Participant:	Observation #:	Date of Observation:	/	/2024
Observer: Brewer	Start Time:	:	am pm	Lesson Area of Study: Math Reading Writing

<i>Time Interval</i>	Level of Engagement			Off-Task Behavior Present?		Description of Off-Task Behavior	Additional Notes/Observation	Score (points)
	Absent	Low	High	No	Yes Mild Severe			
3 Minutes								
6 Minutes								
9 Minutes								
12 Minutes								
15 Minutes								

Scoring **0pt** **1pt** **2pt** **2pt** **1pt** **0pt** **Average Score Across Lesson** _____

Definitions:

Level of Engagement

Absent: Student displays no interest in materials and/or subject matter delivered by instructor. Materials provided may be used in ways other than intended. Student's eye gaze and/or body position is not directed at instructor or materials being presented. Student does not respond to inquiries or instructions.

Low: Student shows some interest in materials and/or subject matter delivered by instructor. Student's eye gaze and/or body position is directed at the instructor or materials at least 50% of the time. Student responds to inquiries but answers are short and/or limited and may display little understanding of the subject matter.

High: Student shows marked interest in subject matter and uses materials as intended. Student's eye gaze is on instructor consistently when information/instruction is being delivered and on materials or activities as appropriate and instructed. Student responds to verbal inquiries from instruction for actions and/or responds appropriately to questions regarding subject matter to demonstrate understanding.

Off-Task Behavior

On-task behavior is defined as "eyes on the teachers or seatwork being done, engaged in reading, making appropriate comments, or writing down answers as appropriate for the specific task" (Richards, L.C., et al., 2010 p.555). Off-task behavior includes any behavior that is not considered to be on-task. Off-task behaviors may include, but are not limited to, student eye gaze directed away from instructor or materials, leaving seat without permission, using materials in ways not instructed or intended by instructor, talking off subject, passively sitting, refusal to participate in learning, and/or inappropriate or unsafe body movements.

Be Responsible. Be Respectful. Be Safe.



Using the Stability Ball Chair

Be Safe.



Use a hand to hold the stability ball chair in place when sitting down or standing up.

Be Safe.



Keep your feet on the ground at all times when using the stability ball chair.

Be Safe.



Use the stability ball chair for small, controlled bounces. Your pockets should be touching the stability ball at all times.

Be Respectful.



Use the stability ball chair for quiet bounces. Your body should not be distracting to other students. Your voice should be level 0.

Be Responsible.



The stability ball chair is a learning tool, not a toy. Be sure to do your best and finish your work while using the stability ball chair.



Copyright/Digitized Copy Upload Agreement

This agreement is made between Kimberly Brewer (hereinafter called the author) and the University of Wisconsin Oshkosh for the following described work (Title of Thesis/Dissertation/Research):

EFFECTIVENESS OF STABILITY BALL SEATING IN SPECIAL EDUCATION CLASSROOM IN STUDENTS WITH AUTISM

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This agreement has been signed by:

Kim Brewer
(Author's Signature)
4/15/2024
(Date)

University of Wisconsin Oshkosh

By: Stacey Shing
(Witness Signature)

Chair, Dept of Spec & EC Ed
(Title)

5/14/2024
(Date)