

**INVESTIGATION OF RESEARCH-PROVEN COMFORT AND SUPPORT  
STRATEGIES FOR STUDENTS WITH AUTISM ASPECTRUM  
DISORDER**

by

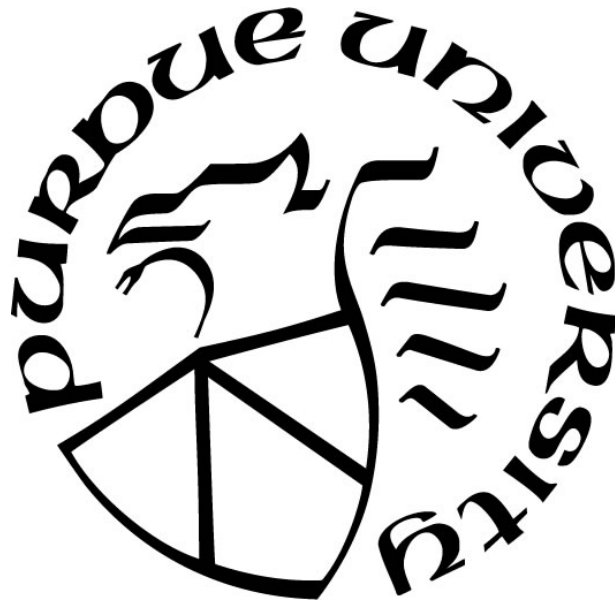
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This work is dedicated to my parents, Richard and Judy Berry.

To my incredible Mom and Dad,

In all my endeavors and pursuits, throughout my entire life, you have always been extremely supportive and made me feel that you are proud of me. I am so very grateful for that support. I will continue to be grateful to you for so many reasons. Thank you for your consistent love and encouragement each step of this journey in graduate school. Thank you for the many sacrifices you both made to help me complete my undergraduate degree, and for the words of life that helped me decide to begin graduate school for the first time so long ago. I'm finally finishing this year! Lastly, but of great importance to me, thank you for your steadfast friendship. I'm so glad we've been close all these years. Our relationship has been a constant source of strength that means so much. What an incredible blessing you are to me. I love you both more than you know.

Your grateful daughter,  
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## **ABSTRACT**

One out of every twenty children in school is affected, in significant ways, in classrooms across our nation by sensory processing disorders (SPD) (Nodding, 2017). In classrooms where students with Autism Spectrum Disorder (ASD) are present, that number rises even higher because almost 100% of students with ASD experience SPD (Murray, Baker, Murray-Slutsky & Paris, 2009). Teachers must understand the unique needs of students with SPD in order to create environments where students feel comfortable to learn in every day. Optimal learning for students with SPD requires an environment that supports and assists them to effectively and systematically organize and understand the information they are taught. Unfortunately, most classrooms present sensory challenges that can be frustrating or even overwhelming for students diagnosed with SPD. The daily negative experience at school often adds more stress for these students due to their social interactions and how they regulate emotions (Lytle and Todd, 2009).

There are two purposes of the study: 1) general education teachers' use of interventions to support students with ASD and SPD was examined to determine what worked most effectively in their classrooms, and (2) general education teachers' perception of barriers for implementing research-based strategies was examined in order to identify potential problems in creating supportive environments for students with ASD and SPD in the general education classroom. Eighteen teachers participated in the study at a private school with 335 students in a suburban area. The survey included 8 questions about the effectiveness of sensory interventions for students with ASD and/or SPD at school.

The result of this study showed that the majority of teachers want to be supportive to students diagnosed with SPD. Seventeen teachers (94%) expressed a concern for students who may feel overwhelmed by providing some variation of a calming area within their classroom.

Concerning the use of flexible seating, 6 teachers (33%) responded that they do not offer flexible seating, and 3 teachers (17%) indicated it was the least effective intervention they offered students. These responses could indicate that there is misunderstanding concerning the use of flexible seating and how to effectively implement it within the general education classroom. Another notable result is that 7 general education teachers (39%) indicated they lacked the space to provide a calming area for students in their classrooms.

The result of the current study supports the findings in previous research that there is a need for teachers to be more knowledgeable about how to create classrooms that offer support, effective strategies for students diagnosed with SPD. A handbook was created for general education and special education teachers based on the result of the present survey study and findings in previous studies. This handbook focuses on clear explanations of the unique stresses that students with SPD face, with the hope that if teachers have a clearer understanding about the needs of these students, they will be inspired to consistently offer research-proven strategies to support and encourage their students who face unique challenges in the school environment every day.

# **CHAPTER 1**

## **INTRODUCTION**

### **Statement of the Problem**

Across our nation, approximately one child in 20 is severely impacted by sensory processing disorders every day in classrooms (Nodding, 2017). Of students diagnosed with Autism Spectrum Disorder (ASD), nearly 100% experience sensory processing disorders (SPD) (Murray, Baker, Murray-Slutsky, & Paris, 2009). SPDs impact the way students learn, interact with their peers, engage in classrooms activities, and regulate emotions (Nodding, 2017). Individuals diagnosed with SPDs misinterpret sensory input that occur from normal, everyday events and have difficulty organizing and understanding information from what they have seen, heard, or felt (Murray et al, 2009). In a typical classroom setting, many sensory challenges exist for students with Autism and SPDs, and they may feel confused, irritated, disinterested or overwhelmed from the sensory information they are processing while in their classroom (Lytle & Todd, 2009). For general education teachers and special education teachers, understanding the challenges of students diagnosed with Autism and SPDs, and knowing how to create a classroom environment that is comfortable for them (allowing for sensory comfort) is essential for students to experience optimal learning opportunities (Nodding, 2017).

### **Significance of Project**

This project is significant to all teachers because most classrooms have one or more students who are on the ASD spectrum and experience unmet sensory challenges at some point each school day. Through the use of appropriate sensory interventions, some students have learned how to regulate or manage their emotions and are better able to stay focused and engaged

in their classroom settings (Maich, Davies, & Rhijn, 2018). Other students are frequently at the breaking point because of too much stimuli that they are unable to escape from, or they are off-task because they are seeking sensory input from their environment and it leads to distraction for them and for their classmates (Lytle & Todd, 2009). Sometimes teachers use a variety of classroom interventions for students with ASD, but are not aware of research indicating that regular physical activity throughout the day decreases stereotypical behavior, reduces stress, and increases a students' ability to focus for learning (Lytle & Todd, 2009). A sensory break can be taking a short walk around the gym to experience physical activity, moving heavy books from one part of the classroom to another part, or moving to a quieter area of the classroom. These breaks give students the sensory input they need to be able to organize their body, their emotions, and their mind for focused attention in the classroom (Murray et al, 2009).

### **Purpose of the Study**

The purpose of this study was: (1) to identify the interventions and strategies that general education teachers use and perceive to be effective for supporting students with ASD, and (2) to develop a handbook that presents research-proven sensory interventions for teachers to create supportive learning environments for students with ASD and SPDs. This study was approved by the Purdue Institutional Review Board and focused on investigating the interventions and strategies general education teachers use with students who have ASD. A survey was given to teachers to find out what interventions and strategies they use and how effective they perceive them to be for students with ASD. Using information from previous studies, as well as information gathered from the proposed survey, a teacher handbook was developed to present ideas for general education teachers and special education teachers to incorporate research-based

interventions and strategies in their classrooms for students who have ASD or other sensory sensitivities.

### **Research Approach**

This project used a survey study. To discover the interventions and strategies used by classroom teachers with students who have ASD and how effective teachers think these interventions and strategies are, data was gathered through a one-time anonymous survey for teachers. This survey was given to the teachers at a parochial school in the Midwest. The principal of this school gave permission for this survey (Appendix A). The recruitment email for this was sent one week prior to the survey (Appendix B). The reminder email was sent one week before the completed surveys were due (Appendix C). The survey for teachers consisted of 5 multiple-choice questions, and 3 short answer questions (Appendix D). The survey questions were developed through research from peer-reviewed articles about sensory interventions in the general education classroom. The teachers were contacted through email and the completed, anonymous surveys were printed, then placed in a sealed envelope and put in my mailbox in the school office. Permission for this survey study was approved by the Purdue University Human Research Protection Program (Appendix E).

### **Literature Review**

#### **Autism Spectrum Disorder and Sensory Processing Disorders**

Of the four core deficits that students with ASD usually exhibit, difficulty in sensory processing is a deficit that virtually all students with ASD have; these are referred to as *Sensory Processing Disorders* or a *dysfunction of sensory integration* (Murray et al, 2009). Sensory processing disorders are complex malfunctions of the brain that cause ongoing misinterpretation

of sensory input (Murray et al, 2009). In a school setting, SPDs can look like students with poor focus, irritability, or exhibiting out of control behavior or emotions (Dunn, Little, Dean, Robertson, & Evans, 2016).

### **How do Sensory Breaks benefit students?**

Sensory breaks give students the ability to change the amount of sensory stimulus in their environment. When they are continually processing too much or too little stimuli, students have difficulty learning and retaining knowledge (Kinnealey, Pfeiffer, Miller, Roan, Shoener, & Ellner, 2012). Research also shows that sensory processing is linked to social participation and cognition (Dunn et al, 2016). Allowing a student to step back from the job of constantly processing sensory stimuli gives their senses, emotions, and their brain a short break to rest.

### **Research Questions**

1. What are the most common sensory interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks in a calming area, etc.) used by general education teachers for students with Autism Spectrum Disorder?
2. How effective do general education teachers perceive sensory interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks in a calming area, etc.) to be for helping students with Autism Spectrum Disorder regulate (effectively manage) their emotions?

## **Research Methodology**

### **Research Method**

This study was conducted using a survey method and involved the teachers that work at the same school as the researcher. The survey was compiled by the researcher and was based on previously published studies and research-proven interventions and strategies for students with ASD and and/or sensory sensitivities.

### **Participants**

Participants contacted for this study were the staff members who teach at a parochial school in the Midwest. The staff includes classroom teachers, Music teachers, the Art teacher, the Special Education teacher, the Gifted and Talented teacher, and the Physical Education teacher. All of the teaching staff have Indiana teaching licenses and one-third of the teachers have a Master's degree in education. The average length of time the teachers have been in the field of education is 17 years. All of the teaching staff are Caucasian.

### **Setting**

This parochial school is fully accredited and educates 335 students in Kindergarten through eighth grade. The student-teacher ratio is 9: 1. The student body is forty-eight percent male and fifty-two percent female. The student body is ninety-seven percent Caucasian, two percent African-American, and one percent Hispanic. The school recently completed an exhaustive study about security and safety updates that resulted in a few large-scale improvements. In addition, a uniformed city police officer is in the building for the entire school day every day.

### **Recruitment and Data Collection Procedures/Methods**

Participants were contacted for this study through a recruitment email that requested their participation by completing a survey. The survey consisted of five multiple-choice questions and three short-answer questions, and was attached to the email as a Word document. After completing and printing the survey, participants placed it in an envelope, then put it in the investigator's mailbox in the school office.

### **Data Analysis Procedures/Methods**

After completed surveys were turned in, the data was analyzed by the research investigator. Answers and information were categorized according to response. Information from previous studies about interventions and strategies to support students with ASD, as well as data and information from this survey, were used to develop a handbook for teachers with suggestions of research-based ideas for interventions and strategies to help classroom teachers create classroom environments that offer sensory support for students with sensory processing disorders and sensory sensitivities.

### **Timeline**

Recruitment emails were sent out to all teachers in late November, then the following week, a second email was sent with the survey attached as a Word document. Participants were asked to respond within two weeks. A reminder email was sent to all teachers one week before the completed surveys were due. Once surveys were completed and turned in, the answers were analyzed and used, along with research from other studies, to guide the development of the handbook about sensory interventions.

## **Outline for Development of the Special Project**

This special project handbook was created for general education elementary teachers and special education teachers to provide research-based interventions and strategies to assist them in making decisions about the sensory environment in their classrooms. This handbook includes ideas for using research-based interventions and strategies to create a classroom that offers sensory comfort to students with ASD, but also to other students who may have sensory sensitivities. This handbook was divided into three sections: the first section addresses characteristics of sensory overload in students, the second section addresses the needs of sensory seekers, and the third section offers suggestions for giving students sensory breaks. The main purpose of this handbook is to assist teachers in providing effective interventions and strategies to assist their students who have characteristics of ASD, but it is also the hope that this handbook will be helpful for teachers in assisting all students with sensory sensitivities.

## **CHAPTER 2**

### **LITERATURE REVIEW**

The purpose of this survey study was to investigate the perspective of teachers concerning the effectiveness of the intervention strategies they are providing for students who have ASD. The research questions that were investigated for this study were chosen because of the importance of creating a sensory environment that takes into consideration the sensory needs of students with ASD and SPDS (Nodding, 2017). Almost all students who are impacted by ASD also have SPDS, and this study investigated the way students with ASD are affected by everyday activities and the sensory overload that can come from those activities (Murray et al, 2009). Topics investigated and researched in this study were sensory overload for students, poor behavior caused by unmet sensory needs, anxiety and autism, calming areas to support emotion regulation in the classroom, and the benefits of physical exercise as options for students. The research questions used to develop this survey study were:

1. What are the most common interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, etc.) used by general education teachers for students with ASD?
2. How effective do general education teachers perceive these interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, etc.) to be for students with ASD in managing their behavioral and emotional reactions?

The reader will find clear explanations and examples of these topics discussed in this chapter. Definitions of commonly used terms will be explained with more clarification given in individual sections. Lastly, the importance of teachers providing ways for students with ASD to

have sensory needs met in the classroom in order to provide optimal learning experiences will be communicated to the reader.

### **Characteristics and Facts about ASD**

ASD is a lifelong neurological disorder that has stereotyped behaviors, deficits in social skills and communication, unregulated emotions, sensory sensitivities, and often an accompanying stress or anxiety disorder (Miramontez and Schwartz, 2016). This disability varies widely in severity and is referred to as a spectrum because of the vastly different ways that it can manifest in individuals (Lytle & Todd, 2009). Due to the co-morbidity rate of other challenges accompanying ASD, there are many factors for teachers to consider when planning for meaningful learning experiences for students with ASD (Dutka and Kalyn, 2018).

### **Issues for Students with Autism**

Students who have been diagnosed with ASD have unique social and learning needs (Maich, et al, 2018). Due to the challenges for students with ASD that exist around social communication, social emotional issues, and executive function, adapting to a social environment often presents great stresses and difficulties of many kinds (Ahlers, Gabrielsen, Lewis, Brady, & Litchford, 2017). In addition to these mentioned, students with ASD continually attempt to balance the sensory input they are receiving from their environments (Maich, et al, 2018). The implications of social communication issues add to the unique learning needs characterized by students with ASD, as these students are often unable to clearly express their feelings through verbal communication and frequently misread the emotions and social cues that others present in everyday interactions (Lytle and Todd, 2009). These types of social emotional experiences contribute to a sense of isolation for many students with ASD who decide

it feels too risky to try to engage with others in everyday social settings (Ahlers, et al, 2017). Having a sense of uncertainty about what others are communicating and how to respond inhibits students with ASD from engaging with their peers and can lead to feelings of frustration, anger, and loneliness (Lytle and Todd, 2009).

### **Sensory Processing Disorders**

Compared to children who are develop in neuro-typical ways, students with ASD often display patterns of over-responsivity or under-responsivity to sensory stimuli (Ismael, Lawson, & Hartwell, 2018). This atypical response of the body to sensory processing of stimuli is referred to as Sensory Processing Disorders (SPDs) (Ismael, et al, 2018). Sensory processing disorders are the established cognitive associations between sensory processing and the behavior and participation of children in their environment (Dunn, et al, 2016). One characteristic of having an SPD is exceedingly high or low thresholds to sensory stimulation (Murray, et al, 2009).

### **Sensory Issues and Everyday Activities**

The effectiveness of the general education teacher to provide interventions and strategies for students with sensory needs often has a direct impact on how successful that year of school is for the student. It is hypothesized that students who have been identified with sensory processing disorders are not consistently receiving appropriate and effective interventions of widely accepted interventions for supporting students with sensory processing disorders and issues (Murray et al, 2009). For students who have ASD, it is vitally important that their classroom teacher understand that a student's sensory needs must be met in the classroom if they are to maintain adequate focus for learning to happen (Murray et al, 2009).

Autism is a complex disorder and since almost all individuals who have been diagnosed with ASD also have sensory deficits, students often feel overwhelmed with too much sensory input, or they seek out unusual sensory input (Mills, Chapparo, & Hinitt, 2017).

In a classroom setting, students with ASD can demonstrate behavior that looks like poor focus or a lack of involvement, which could actually be attributed to the result of auditory filtering or touch sensitivity that is influencing the student's behavior (Dunn, et al, 2016). For other students with ASD, being too stimulated by what they are seeing or hearing can lead to out of control behavior or emotions, which causes awkward social interactions or disruptive behavior, contributing to the stress that classroom teachers experience, all due to a lack of understanding that the behavior is the result of that students' sensory needs going unmet (Mills, et al, 2017). For other students who are seeking increased sensory input, behavior that looks like play that is too rough, or giving other students unwanted hugs, even rolling on the floor at inappropriate times, are characteristic of students who are seeking increased sensory input. In their scoping research concerning sensory factors and the impact they have on the daily life of children, Dunn, Little, Robertson, & Evans (2016) assert that sensory processing is linked to social participation, compliance, and cognition.

When planning for a lesson, one of the first things a teacher needs to consider is the way that the delivery of the lesson will be received. Most students tolerate the everyday noise, activity, and visuals of a general education classroom, but for students with sensory challenges, a general education classroom can be a difficult environment to learn in because of the numerous different ways that their senses are being bombarded throughout the day (Howe and Stagg, 2016).

### **Behavior linked to Sensory Overload**

Problem behavior in a student is often difficult to change because the motivation or cause of the behavior might not be understood. A normally cheerful and compliant child can begin to demonstrate that their senses are overwhelmed through behavior that is not conducive to group learning. When this happens, sometimes teachers are not sure what has caused the behavior because there is no obvious event that they have witnessed and to add to their frustration, the child often struggles to effectively communicate what they are feeling or what they are attempting to cope with in the classroom (Murray, et al, 2009). Even asking the student why they are repeatedly doing certain things is not always productive if the student does not understand why they repeatedly display a type of behavior. (Mills, et al, 2017). In some cases, the cause of poor behavior is directly related to a sensory issue the student is having that they may not understand or be able to verbalize, especially if they are in the elementary grades (Maich, et al, 2018). Sensory issues are not visible but they can be seen in the anxiety, behavior, or irritability that a student is exhibiting (Mills, et al, 2017).

### **Anxiety and Autism**

As more research reveals the challenge that students with ASD have in the everyday experiences of a general education classroom, it is becoming more critical that teachers work toward avoiding unnecessary stress for students with ASD that can be created by an inadequate or overwhelming level of sensory input (Howe and Stagg, 2009). Additionally, most experts in the field of autism agree that one of the classic traits of ASD is anxiety, and as a result, most students with the diagnosis of ASD live in an almost constant state of heightened arousal or anxiousness (Dutka and Kalyn, 2018). Within the normal, everyday environment of a school, the

extra noises, visual stimulation, executive function demands, and social stresses only add to the anxiety students with ASD are experiencing on a daily basis (Dutka and Kalyn, 2018).

In a classroom setting, the responses of students with unmet sensory needs are sometimes misread by teachers who think the behavior is emotionally or behaviorally based, and this can lead to a pattern of response from the teacher that ultimately leads to more disruptive behavior from the student (Mills, et al, 2017). When instructing an entire classroom, it is very easy to misunderstand what students are experiencing because sensory input can be subtle. Teachers are focused on moving through the lesson and keeping as many students engaged as possible, while encouraging appropriate behavior and discouraging or ignoring inappropriate behavior. When sensory input is at the frustration levels for students, the potential for problem behavior is present (Lytle and Todd, 2009).

Many psychologists are beginning to understand that difficulty in sensory regulation is a likely contributor to anxiety for those who have Autism Spectrum Disorder (South and Rodgers, 2017). There is evidence that higher anxiety correlates with sensory dysfunction that is more pronounced (South and Rodgers, 2017). Occasionally, teachers are able to tell when a student is feeling anxious because of physical signs such as flushed cheeks, or appearing tense, but other times teachers do not know a student is feeling anxious until it is exhibited through poor behavior choices or emotional outbursts (Minahan and Rappaport, 2012). When this happens, emotions are usually elevated and the impact on the student and the rest of the class is larger and longer lasting.

## **Research-proven Strategies for students with Autism**

### ***Antecedent Procedures***

Anticipating what students may need in order to remain focused and be engaged is part of a teachers' role in managing their classroom environment (Childre and Van Rie, 2015). It is even more important for students with ASD that their teachers consider what they need in order to be focused and engaged in learning with their peers. One way to help students who are continually using energy to filter and organize sensory stimuli is to give them tools to make coping with their environment easier.

A strategy that has been shown to be effective for doing this is titled Antecedent Procedures and it is based on the idea that changing an aspect of a student's environment in order to bring about a desired response or make an unwanted behavior less likely to happen is an effective way to help a student be focused and feel engaged in the class (Crosland and Dunlap, 2012). This intervention has been effective in classrooms for helping students with ASD be prepared for what is coming next in the course of a school day (Crosland and Dunlap, 2012). Prompting or coaching a student about what is about to happen and what they will be seeing, hearing, feeling, and smelling in a new situation helps them prepare mentally and emotionally to be ready for that change. Using the strategy of Antecedent Procedures allow a student who has ASD and struggles with change to be ready for what is coming next and respond better to what will be expected of them. Although they are not visibly apparent, sensory issues can be seen in the stress load, behavior, or irritability that a student is demonstrating, and helping students be more prepared for what they will experience is always a benefit to the student (Mills, et al, 2017).

**Flexible Seating as an Intervention.** When a student with ASD is feeling overwhelmed or having difficulty focusing, by making a few simple changes in the physical environment, the

classroom teacher can sometimes provide the variable a student needs in order to have a more meaningful learning experience (Howe and Stagg, 2016). Responding to the sensory needs of a student with ASD can be as simple as changing where they sit in the classroom. For example, if a student with ASD is sensitive to visual stimulation, having them seated in a corner of the room where they can see all that is placed on the walls and written on the board, plus all the activity of the classroom, may be overwhelming for them and can cause frustration and irritability (Howe and Stagg, 2016). A better option for these students might be to offer them flexible seating, which gives students a choice of where they will sit and what they will sit on in the classroom for that day. In addition to regular classroom chairs, offering students with ASD yoga balls, air cushions, or wobble chairs can sometimes provide the sensory input that they are needing to focus and remain in a calmed state (Dutka and Kalyn, 2018). Understanding what specific aspect within a students' environment is impeding their ability to focus is very valuable information to act on in order to unlock the potential of that student's learning and growth. (Howe and Stagg, 2016).

**Noise-cancelling Headphones as a Support Strategy.** Some students with ASD are very sensitive to sounds and having a teacher offer a simple intervention such as noise-cancelling headphones in the classroom environment can have an overall positive effect for that student. Teachers can provide noise-cancelling headphones for the days that the activity and noise level in the classroom will be higher than normal. Another strategy for responding to the sensory needs of a student with ASD who is sensitive to auditory sounds can be as simple as changing where they sit in the classroom. For example, if they are close to a loud register, or if seated near the middle of the classroom and are exposed to hearing noises from all directions, the teacher can

offer them noise-cancelling headphones, in addition to allowing them to choose another area to sit in the classroom (Ismael, Lawson, & Hartwell, 2018).

**Calming Areas Provide Emotion Regulation Opportunities.** For these reasons, a growing number of classroom teachers are purposefully creating designated spaces in their classrooms for students to retreat to for short breaks, with the goal being that the student practices and benefits from a variety of self-regulating strategies of everyday emotion (Maich, et al, 2018). These places specifically set aside in the general education classroom can look many different ways, but the purpose for them is the same: to offer students a place away from others where they can spend a few minutes in an activity that brings a sense of control and calm, with the goal of returning after a short break to join the rest of the class ready to engage, participate, and learn. Sometimes these calming areas are used in such a way that they function as sensory breaks for students with characteristics of ASD. Using a calming area as a sensory break gives a student the option to remove some of the sensory stimulus from their immediate environment by putting on headphones, leaving the main part of the classroom for a brief time to experience less visual stimulation, or even sitting on a different surface for a different proprioceptive experience ((Kinnealey et al, 2012).

Frequent options for students at classroom calming areas are book in a student's special interest area, comforting pillows and visuals, plus the option to either squeeze a stress ball or similar object, or cuddle a stuffed animal that has been specifically chosen for that student (Maich, et al, 2018). Other options that are part of some calming areas allow the student to listen to music that promotes relaxation or stress-reduction, and also providing a way for them to experience aromatherapy (Lytle and Todd, 2009). Another aspect that these calming areas provide for students with sensory processing disorders is a place to practice self-regulation skills

in a semi-private area that is away from the mix of their peers (Maich, et al, 2018). This essentially allows the student to take a break from being with the other students in order to think about how they are feeling and what they should do next.

**Physical Movement as a Way to Improve Sustained Focus.** Recent research has shown that sensory motor experiences enhance the ability of students with ASD to engage in social situations with more self-confidence and better awareness of appropriate social interactions (Lee, et al, 2009). The result of thirteen studies that critiqued outcomes of exercise interventions concerning social behavior showed that physical exercise and movement can result in improvements in social-emotional functioning, cognition, and sustained attention and focus in academic settings (Bremer, et al, 2016). In another study, it was determined that for students with ASD, exercise was an efficient way for the brain to become ready and able to learn (Dutka and Kalyn, 20018). For students with ASD who are craving more sensory input, remaining seated for too long will cause challenges in behavior because of unmet sensory needs (Lee, Lambert, Wittich, Kehayia, & Park, 2016).

For classroom teachers of students with ASD, allowing a student to engage in some form of physical activity as an intervention for better focus is a research-proven option that has many benefits and is worth the time invested to make it possible (Bremer, et al, 2016). For teachers who do not have an extra staff person in the classroom to accompany a student to the gym to walk or run a few laps, there are still many options the teacher can incorporate in the classroom setting. Having a student with ASD move heavy books from one area of the classroom to another area, or allowing them to push-ups against a wall, or encouraging them to do stationary exercises such as sit-ups, jumping jacks, or deep- knee bends while still in the classroom all have

the benefit of increasing focus, decreasing disruptive behaviors, and improving a student's self-efficacy afterwards (Menear and Neumeier, 2015).

### **Analysis of Previous Publication**

There are many handbooks and teacher's manuals available for teachers who want to learn more about classroom management and specifically interventions and strategies to assist students who have Autism Spectrum Disorder. After researching manuals and handbooks that are currently available, I found that most of them are very lengthy and it is time-consuming to narrow down the specific intervention that the teacher needs to use, or the explanation for the intervention is technical and it can feel intimidating to implement. One of the handbooks I reviewed was School Services Sourcebook: A Guide for School-based Professionals (Franklin, Allen-Meares, Harris, 2012). This manual addresses a wide range of current topics that are challenging for teachers and require thoughtful engagement. It also provides many additional resources for teachers to refer to for more information and support for their students. While this is a valuable resource for all teachers, and contains a wealth of information that is necessary to be familiar with, it is a very large volume and has 987 pages. For some teachers, a resource this large is too much information to sort through on a regular basis and would be seen as a very large textbook, and frequently passed over for a resource that is easier to navigate.

Another handbook I reviewed was The Classroom Teachers' Inclusion Handbook: Practical Methods for Integrating students with Special Needs (Yanoff, 2006). This handbook also offers strategies and suggestions for a variety of challenging circumstances that teachers face with students and is a great resource, especially for newer teachers. However, one of the drawbacks with this handbook is that it is also lengthy with 222 pages, and because of the amount of information included, might not feel easy to use for teachers who have limited time to

investigate new ideas. For these reasons, I developed a handbook for teachers that offers interventions and strategies for helping students with ASD that is written and presented in a simpler format and can be used as a quick reference for teachers when a new intervention or strategy is needed.

### **Definition of Key Terms**

**Autism Spectrum Disorder.** A lifelong neurological disorder that has stereotyped behaviors, characterized by deficits in social skills and communication, unregulated emotions, sensory sensitivities, and often an accompanying stress or anxiety diagnosis.

**Flexible Seating.** Giving students different seating options in the classrooms, as well as different locations within the classroom.

**Noise-cancelling headphones.** Headphones that filter out normal classroom noises and provide a quieter way to be involved in the classroom.

**Physical movement.** The act of moving your body around in a way that brings relief and improved focus.

**Short breaks in a calming area.** Spending 5-10 minutes in a specially designated part of the classroom that has items available for holding, listening to, or looking at while emotions and stress levels are soothed.

**Sensory Processing Disorders.** The condition of having a sensory processing disorder that may result in exceedingly high or low thresholds to sensory stimulation.

**Sensory Breaks.** Giving students the option to remove some of the sensory stimulus from their immediate environment by putting on headphones, leaving the room for a brief time to experience physical movement, or moving to a calming area for a short time.

**Unregulated Emotions.** Having little or no control over how your emotions are affected by surroundings or other people.

**Function of Behavior.** The purpose that a behavior serves that motivates the person to continue doing it.

**Sensory Overload.** The state of being overwhelmed by too much sensory input that is difficult to manage and leads to irritability and sometimes outbursts.

**Sensory Seeking.** The state of needing more sensory input; i.e. wanting to feel more pressure so you hug another student too tightly.

**Executive Function.** The brain-based skills that are needed in order for humans to perform a task correctly or act in an appropriate manner; the two main domains of executive function are cognitive and behavior.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

Today's classroom teachers are charged with the enormous task of educating students in ways that align with state standards, meeting the local school board's priorities for learning, practicing inclusion and equality, adapting to new changes and opportunities, and meeting the individual academic needs of each student (Childre & Van Rie, 2015). In order for teachers to be even moderately successful in these endeavors, they need to be aware of the learning needs of their students and take those into consideration when planning lessons. Recent research points to 5% of students being severely impacted each day by sensory processing disorders (Nodding, 2017). For the typical school, that's at least one student, and possibly several more in the classroom each day. While virtually 100% of students with ASD have sensory processing disorders, other students may also have sensitivities and sensory needs that are not obvious at first (Murray, et al, 2009). Sensory needs that are unmet can be evident in unusual behavior, unregulated emotions that result in outbursts or aggressive behavior, or chronic irritability (Lytle & Todd, 2009). For teachers who have students with sensory processing disorders, knowing how to provide sensory breaks, or opportunities for increased sensory input can be extremely helpful in that student experiencing success academically, socially and emotionally (Nodding, 2017).

For this reason, further study is needed to investigate the effectiveness of strategies that general education teachers are using in their classrooms to help students manage sensory sensitivities and exercise choice about how much or how little sensory input they need in the classroom setting. Data for this study was collected through an email survey that investigated the types of interventions and strategies that teachers use in their classrooms for students with ASD

and how effective teachers perceive these interventions and strategies to be for helping students with sensory processing disorders manage their emotions and sensory comfort level in a general education classroom setting. Results of the collected data was used as part of the framework, along with results from other studies, to create a handbook for general and special education teachers to help them provide appropriate support the students in their classrooms with ASD or other sensory processing disorders.

The research questions that were answered in this study include:

1. What are the most common sensory interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks in a calming area, etc.) used by general education teachers for students with Autism Spectrum Disorder?
2. How effective do general education teachers perceive sensory interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks in a calming area, etc.) to be for helping students with Autism Spectrum Disorder regulate (effectively manage) their own emotions?

In this chapter, the reader will find a clear description of the research method and why this design was chosen to accomplish the purpose of this study. The population chosen for this survey will be described as well, along with the justification for this study to take place. Finally, the setting, research design, recruitment and data collection process, data analysis, and timeline of the project will be addressed.

### **Participants**

Participants that were contacted for this study were the teaching staff of a small parochial school. Participants for this study included all general education teachers, plus all extra teachers including art, P.E., and music and band teachers, for a total of 25 teachers. Eighteen teachers

returned completed surveys for this study. No identifying information was collected in this survey in order to ensure that the respondents remain completely anonymous. Teachers were contacted for this study through a recruitment email that requested their participation. This recruitment email was sent from the researcher's Purdue email account to avoid the possibility that any teachers would feel coerced to participate. This email stated clearly that participating in the survey was completely voluntary and that participation or non-participation would not affect their relationship with their employer or any personnel at the school.

### **Setting**

This survey was given to all teachers at a small parochial school in the Midwest. This school is accredited through the state of Indiana and educates 335 students in K-8<sup>th</sup> grade. It is served by the bus system for a large public school system, but accepts students from other counties, with the understanding that parents need to provide transportation for their child if they live outside the district.

This school has been in existence for over 60 years. There are multiple classes for each grade level and all teachers are licensed through the state of Indiana, with one-third having advanced graduate degrees. The average number of years taught by the general education teachers is 17 years. The school does not have a diverse student population with this representation: ninety-seven percent of the student body is Caucasian, two percent is African American, and one percent is Hispanic.

### **Research Design**

The survey emailed to teachers was comprised of five multiple-choice questions about interventions and strategies that the teachers are using or have used in past years and asks them

to rate them for their effectiveness. The question that addressed the intervention or strategy most often used by teachers included a rating scale for teachers to indicate how effective they thought it had been for students with ASD and/or sensory processing disorders. There were also three short answer questions that investigate the use of calming areas, physical movement, and the benefits the teachers feel students receive when using interventions and strategies for sensory comfort.

### **Recruitment and Data Collection**

A recruitment email was sent to all the teachers at this parochial school through the researcher's Purdue email account. The principal of this school gave permission for the researcher to use the teacher's emails that she has access to since she also teaches at the school. The recruitment email was sent from the researcher's Purdue email account to avoid the possibility that any teachers would feel coerced to participate. This email clearly stated that participating in the survey was completely voluntary and that participation or non-participation would not affect their relationship with their employer or any personnel at the school. The recruitment letter also stated that they must be over 18 years of age and that the survey would take between 15 and 30 minutes to complete. One week later, another email was sent with the survey attached. After completing the survey, participants were asked to print it, then place it in the researcher's mailbox in a sealed envelope at the school office. The researcher collected all the completed surveys and kept them stored in a locked personal filing cabinet.

### **Data Source**

After the completed surveys were collected, the researcher analyzed the answers given for each question and organized them based on answers. A record was made of the most

frequently given answer to the least given answer for questions 1-5. The researcher compiled this data in order to summarize teacher answers. For the three short answer questions, data was carefully analyzed for commonalities in given answers and was organized according to themes from the participants' responses. The first 5 questions of the survey investigated the different types of interventions that teachers might use for students with Autism and Sensory Processing Disorders and the perceived effectiveness of each intervention or strategy used. Interventions such as flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, or other interventions that the teachers have used are investigated. Teachers were then asked to indicate which intervention or strategy they used most often and also to rate the effectiveness of the intervention used most frequently for helping students with ASD manage their emotions. Questions 6-8 asked the teachers about giving students an option to participate in physical movement when needing to do something different, if they are providing calming areas in the classroom along with a description, and overall, which intervention has been most effective for their students from their perspective.

Survey Questions	Corresponding Research Questions	Response Format	Sources
What are the interventions you provide for students in your classroom who have ASD? (Please circle all that apply.)	Question 1	Multiple Choice	Ouellet, Carreau, Rouat, Tremblay, & Viosin, (2017).
Of these interventions, which one has been the <b>most effective</b> overall for helping your students with ASD successfully manage their behavior and emotions in your classroom? (Please circle one)	Question 2	Multiple Choice	Dunn, Little, Dean, Robertson, & Evans (2016).
Based on the intervention you listed, please rate how helpful this intervention was for helping your student or students manage their behavior and emotions in your classroom. (Please circle one.)	Question 2	Multiple Choice	Friedlander, (2009).
Which intervention has been the <b>least effective</b> overall for helping your students with ASD manage their behavior and emotions in your classroom? (Please circle one.)	Question 2	Multiple Choice	Lytle and Todd, (2009).

What is the strategy or intervention that you use <b>most often</b> to help students with ASD manage their behavior and emotions in your classroom? (Please circle one.)	Question 2	Multiple Choice	Ashburner, Rodger, Ziviani, & Hinder (2014).
If you allow students to choose physical movement as a sensory intervention, do you have a designated area in your classroom for it and what are the designated choices for movement?	Question 1	Short answer Question	Brenner, Crozier, & Lloyd (2016).
Do you have a quiet or calming area set up in your classroom that students with ASD (or others with sensory sensitivities) can go to for short breaks, and if so, how would describe this quiet or calming area?	Question 1	Short Answer Question	Minahan, & Rappaport (2012).
How would you describe the way the sensory interventions you use in your classroom benefit your students, both immediately and over time?	Question 1	Short Answer Question	Petronell, & Condry (2017).

After completed surveys were turned in, the data was reviewed and organized by the investigator. The results of this study and other research findings about sensory interventions guided and supported the development of the handbook.

### **Outline for Development of the Special Project**

This special project handbook was designed for general education elementary teachers who will have students with Autism in their classrooms. The handbook includes research-based interventions and strategies that teachers can offer students with Autism in order to give them more choices concerning the amount of sensory input that they experience in the classroom.

This handbook is divided into three sections: the first section addresses the characteristics of sensory overload in students, the second section addresses the needs of sensory seekers, and the third section offers suggestions for giving students sensory breaks. It is the desire of this investigator that not only students with characteristics of ASD will benefit from the interventions and strategies represented in the handbook, but that the interventions and strategies discussed will have a beneficial outcome for all students with any level of sensory sensitivities.

### **Timeline of Special Project**

Fourth week of November: Recruitment emails will be sent to all teachers.

First week of December: Survey will be sent to all teachers.

Second week of December: Reminder email will be sent to all teachers.

Third week of December: Completed surveys will be collected and stored securely.

First two weeks of January: Researcher will begin to analyze data and organize it.

Last two weeks of January: Complete additional research for studies that align with survey.

First week of February: Additional research for studies that align with survey; submit proposal (abstract) for the Purdue FW Student Research & Creative Endeavor Symposium.

Second week of February: Complete and edit three pages for each chapter of project.

Third week of February: Submit three pages for each chapter of special project.

Fourth week of February: Continue working on Discussion and Reflection/ Identify graphics.

First week of March: Complete and submit Ch. 6- Discussion and Refection; draft symposium presentation with poster and slides.

Second week of March: Work on Symposium poster and presentation.

Third week of March: Submit draft of handbook chapters, references, appendices, and resume.

Last week of March: Submit Special Project to PFW.

First week of April: Work on Power Point presentation slides and presentation.

Second week of April: Submit Power Point presentation slides and presentation for Special Education Department review; send PPT to Dr. Cho.

Third week of April: Submit final version of Special Project to PFW for review.

Fourth week of April: Final version submitted to Purdue West Lafayette for approval.

## **CHAPTER 4 RESULTS**

### **Introduction**

Research studies have shown that students diagnosed with ASD have challenges of sensory overload or sensory deprivation that cause them to remain in an almost constant state of arousal. This often leads to increased stress for students, which can result in behavior issues, social isolation, and poor self-esteem. The purpose of this research study was to identify the effectiveness of the interventions and strategies that general education teachers use in their classrooms to support students with ASD and sensory processing disorders. Two research questions were the focus of this study: 1) What are the most common interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, etc.) used by general education teachers for students with ASD? and 2) How effective do general education teachers perceive these interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, etc.) to be for students with ASD in managing their behavior and emotional reactions?

The research was accomplished through a survey connected to the two research questions that led to this study. The 8 survey questions supported the research questions with 4 questions relating to the most common and least common interventions used in classrooms, and 4 questions relating to the effectiveness of the interventions used.

The survey questions asked teachers to identify and rate the effectiveness of the interventions they use or have used in their classrooms for students with ASD and/or SPD. The first 5 questions asked teachers about the interventions they used most frequently/least frequently and how helpful these interventions were for helping their students. Answers options for

questions 1-5 for teachers to choose from were flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, with a fifth option to include an intervention not included in this survey that was titled “other”.

The remaining 3 questions asked teachers about how they provide opportunities for physical movement, short breaks to a calming area, and their description of the ways sensory interventions have benefitted their students, both immediately and over time.

### **Current Interventions at School and Their Effectiveness**

Teachers responded on “What are the interventions you provide for students in your class who have Autism Spectrum Disorder (ASD)? This can be over the course of your teaching career-not specific to this school year.” Responses were as follows: Flexible seating (n=13 teachers, 72%), Noise-cancelling headphones (n=8, 44%), Physical movement (n=13, 72%), Short breaks to a calming area (n=14, 78%), and Other, with two answers for this category, visual schedules and one-on one guidance (n=6, 33%).

Teachers reported interventions that had been most effective overall for helping their students diagnosed with ASD manage their behavior and emotions and rated their effectiveness. For flexible seating, six teachers (33%) chose this as most effective; 3 teachers (17%) rated it as “very helpful”, and 3 other teachers (17%) rated it as “helpful”. No teacher responded that noise-cancelling headphones was most effective in their classrooms. Two teachers (11%) chose physical movement as most effective and rated it as “helpful”. Regarding short breaks to a calming area, eight teachers (44%) chose this as most effective; four (22%) rating it as “very helpful” and four (22%) rated it as “helpful”. Two (11%) teachers chose other intervention strategies as most effective such as “one on one guidance” and “visual schedules”.

Teachers reported which intervention was least effective for helping their students diagnosed with ASD in managing their behavior and emotions. Responses were as follows: three teachers chose flexible seating (17%), fourteen teachers chose noise-cancelling headphones (78%), and one teacher chose short breaks to a calming area ( 6%). No teachers chose physical movement as least effective.

Concerning interventions that are used most often in their classrooms to support students with ASD in managing their behavior and emotions, six teachers chose flexible seating (33%), one teacher chose physical movement (6%), ten teachers chose short breaks to a calming area (56%), and one teacher chose a visual emotion chart (6%).

### **Two Evidence-Based Practices: Physical Movement and Calming Areas**

Teachers provided qualitative responses and details of two evidence-based practices: physical movement and quiet, calming areas. Eight teachers (44%) indicated that they did not allow physical movement in the classroom. One teacher indicated that a Go Noodle program is provided to support physical movement. Ten teachers (56%) indicated that there was at least a safe place in the back of the room for physical movement of some kind.

Teachers were asked to indicate if they provided calming areas for students diagnosed with ASD to take short breaks in to reduce anxiety. Specific places used as a calming area for students by seven teachers (39%) have comfort items, such as rugs, pillows, lamps, or stuffed animals. Eight additional teachers (44%) indicated that they have an extra desk or table near the back to be used as a “break” place and that they provide items such as sensory bottles or squeeze balls in those areas. Three teachers reported that they do not have a quiet or calming area for students (17%). Two teachers (11%) indicated that they allow students to take short breaks in another room with a Resource teacher.

### **Overall Effectiveness of Sensory Interventions**

Teachers described the way the sensory interventions they use benefit their students, both immediately and over time, and their responses were as follows. Seventeen teachers (94%) indicated that benefits for their students included more control over their feelings, de-stressing and feeling calmer, being able to think about their choices and then make good choices, a chance to de-escalate, and having better focus after a break in the calming area. One teacher responded that it worked to help the student about half of the time.

### **Summary of Results**

The purpose of this study was to discover the interventions and strategies that general education teachers use most frequently to help students with ASD and SPD, and to investigate which interventions they view as the most effective for students diagnosed with ASD or SPD. The responses of teachers to these questions indicate that there is great awareness among them that students diagnosed with ASD or SPD have sensory difficulty in a typical classroom, and their comments demonstrate that they are making consistent attempts to respond in supportive ways that can help students feel more comfortable in their classroom. Another purpose for this study was to investigate how often general education teachers offer students diagnosed with ASD or SPD the opportunity to take short breaks to a quiet or calming area, and how often students diagnosed with ASD or SPD are given the option of using physical movement as a way to relieve stress and anxiety while in the classroom.

Concerning the interventions that respondents included in their answers, there are conflicting comments concerning flexible seating and how effective it is for helping students diagnosed with ASD, which may indicate that there is misunderstanding about what flexible seating is and how it can be used as an intervention to support students with ASD. Another

possible area of misunderstanding is the use of noise-cancelling headphones, as some studies have indicated that it is an effective intervention for students with ASD, but it was not rated as effective by any of the respondents for this study.

These current findings show that there is a need for a handbook for teachers that will offer research-based interventions and give specific examples of how to use them, in the hope that giving teachers more knowledge about the ways they can support the needs of students diagnosed with ASD and/or SPD will result in more students experiencing success in the classroom.

**CHAPTER 5**  
**HANDBOOK**

Interventions for Students diagnosed with  
Autism Spectrum Disorder:  
A Handbook for Teachers

# Interventions for Students with ASD:

A Handbook for Teachers

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# Introduction

**This purpose of this handbook is to support and encourage general education teachers who are working with students that have specialized learning needs. When I taught in the general education classroom, I was often frustrated from knowing that there were students in my classroom that I did not know how to help. These students were experiencing overload and having out of control behavior with roller coaster emotions.**

**This handbook is born out of a desire to provide practical ideas for teachers in general education and special education classrooms who long to provide what their students diagnosed with Autism Spectrum Disorder (ASD) or Sensory Processing Disorder (SPD) need in order to learn and achieve academic success within a supportive environment.**

**While many of the needs of students with ASD and SPD are the same as a typical students' needs, those who have sensitivities to environmental stimuli face extra and complex challenges that make learning in a normal classroom challenging. It is imperative that teachers working with students who have been diagnosed with ASD and/or SPD understand the unique needs of these students and are**

**willing to adapt and adjust as is needed for them to thrive within the classroom.**

**It is my sincerest hope that this handbook will encourage teachers to go the extra mile in finding what adjustments their students with sensory challenges need in order to be successful. Many times, students have a difficult time expressing their sensory needs to teachers concerning what they need in order to learn, so it is up to us to be knowledgeable about interventions and strategies that may work for their success.**

# My Story

I had always wanted to be a teacher, from the time I was very young and in elementary school, so when I finally reached that time in my life where I had my own classroom, I was elated! I was also as committed as I could be to helping all the young people in my classroom achieve academic success and leave feeling more confident that when they began the year with me. This plan worked pretty well for the first six years and I felt that I was right where I needed to be for helping students.



The following year, I was given a student who had different learning needs than I had experience with and I struggled to find a balance of what was fair to him and what was fair to the other students in the class. Due to some unfortunate circumstances in the school I was working in at that time, no support services were available to this student, although he qualified for a specific learning disability in reading. My personal quest to find what he needed and then provide it

within the limitations of a general education classroom was the first adventure of many on a journey that led to a growing passion within me to be an advocate and front-line support for students who have special learning needs. The following year, I had a student who had extreme emotional challenges, with little support services available at the school, so I was faced with new challenges to learn what I could about establishing relationships, developing trust, and instilling confidence in the ability to learn for an adolescent who had survived loss and trauma at a young age.

Since those experiences of teaching students whose needs I was challenged by every day, I have worked with many other students who also have had unique needs and struggled to find a safe place at school, and more specifically, in my classroom. During this most recent season, I began to realize that my heart was leaning more and more toward the students who routinely struggled at school and as a result, felt left out and left behind. I can now confidently say that I no longer view myself as a general education teacher, but feel very called to and see myself as a special education teacher. This is what feels exactly right for me. Although at the time, my growing pains as a teacher were truly frustrating and tested my resolve to remain in education, I now see that they were part of a greater plan for me to be shaped into a teacher with a deep commitment to educating children who have unique learning

challenges and require the understanding and support of an educator trained to help them learn in a way that is right for them.

I hope you are inspired and feel encouraged to try the interventions and strategies introduced in this handbook – your students will follow your lead as you teach them to reach for success!

*Mrs. Carmen Cleaveland*

# Section 1: Introduction

Dear Teacher,

Welcome to a resource that was created just for you! My hope is that after you've been able to think about and process all that is included in this handbook, you will feel better equipped and confident in how you can help students in your classroom who may have challenges with sensory input.

You may feel that these terms are familiar to you, and I hope they are! To benefit the most from this handbook, it will be important to have a clear understanding of these terms and their meanings - they will be referred to often throughout each chapter.

Sensory sensitivities don't just affect children; adults can also experience all of the discomfort and effects of too much or too little stimuli. As teachers, it is helpful to be aware of how stimuli from our environment can impact our overall ability to cope with the current demands placed upon us. **But**, as the adult, *you* have the capacity to make necessary changes to help yourself –in order for students to be at their best, these are choices that- ideally- they should have, too.

So let's start to think about how to help students with Autism Spectrum Disorder (ASD) or Sensory Processing Disorder (SPD) be their best selves in your classroom, where 1) you want to be effective and supportive to the children assigned to you for this year, and 2) for whom you want to create the most successful learning experience for them that you can.

In this chapter, along with being introduced to a few new terms, you will also be reminded of the characteristics of students diagnosed with ASD. Please keep in mind that ***no two children with ASD are the same*** – these characteristics manifest differently in each person who has ASD. What this might look like in your classroom is, if you have 3 students with ASD, they could realistically all have very different mannerisms and behavior traits that are listed here, without resembling each other *at all*. People with ASD are unique and a phrase that I learned early in my ASD training was, *"If you've met one person with Autism, you've met one person with Autism."*

And now, let's begin!

Cheering you on!

Mrs. Cleaveland

## Definitions



Autism Spectrum Disorder: A lifelong neurological disorder that has stereotyped behaviors, characterized by deficits in social skills and communication, unregulated emotions, sensory sensitivities, and often an accompanying stress or anxiety disorder.



Executive Function: The brain-based skills that are needed in order for humans to perform a task correctly or act in an appropriate manner; the two main domains of executive function are cognitive and behavior.



Flexible Seating: Giving students different seating options in the classrooms, as well as different locations within the classroom.



Function of Behavior: The purpose that a behavior serves that motivates the person to continue doing it.



Noise-cancelling headphones: Headphones that filter out normal classroom noises and provide a quieter way to be involved in the classroom.



Physical Movement: The act of moving your body around in a way that brings relief and improved function.



Sensory Breaks: Giving students the option to remove some of the sensory stimulus from their immediate environment by putting on headphones, leaving the room for a brief time to experience physical movement, or moving to a calming area for a short time.



Sensory Overload: The state of being overwhelmed by too much sensory input that is difficult to manage and leads to irritability and sometimes outbursts.



Sensory Processing Disorders: The condition of having exceedingly high or low thresholds to sensory stimulation.



Sensory Seeking: The state of needing more sensory input; i.e. wanting to feel more pressure so you hug another student too tightly.



Short Breaks in a Calming Area: Spending 5-10 minutes in a specially designated part of the classroom that has items available for holding, listening to, or looking at while emotions and stress levels are soothed.



Unregulated Emotions: Having little or no control over how your emotions are affected by surroundings or other people.

# Characteristics of Autism Spectrum Disorder

*(Every person with ASD is unique—these are common characteristics)*

- Avoids eye contact with others
  - Frequently irritable
  - Socially awkward
  - Limited friendships
  - Strong preferences for certain foods
  - Intolerant of clothing materials/fit of clothing
  - Strong emotions without clear cause
  - Difficulty in understanding inferences
  - Communication challenges
  - Difficulty understanding another's perspective
  - Extreme interest in one topic
  - Reads and hears conversation in a literal sense
  - Shuts down around others
  - Easily overwhelmed
  - Repetitive physical movement
  - Appears to prefer being alone
  - Struggles academically
  - Upset by change in schedule or routine
  - Stressed by noises
  - Appears anxious
  - Can be very blunt
  - Unengaged during classroom activities
  - Disruptive behavior
  - Too physically rough with others
- (Miramontez & Schartz, 2016)

## Section 2: Sensory Overload

Dear Teacher,

After reading about all the characteristics and terminology related to ASD and SPD, let's focus on *sensory overload* and think about what a student is experiencing when this is happening. Remember, "sensory" refers to everything our 5 senses are taking in and processing, so in your classroom, this includes the lighting, all the sounds, smells, the temperature, and the way the chairs or even clothing feels to your student.

In the same way, if there are decorative items hanging from your ceiling, colorful posters on every wall, a white board that has teaching resources magnetized around the corners, plus spots full of notepads, flashcards, iPads, personal care items such as tissues, sanitizer, lotion – all these things can easily be too much visual stimuli for a student with SPD.

Sometimes we get used to it, but when there are random noises coming from chairs moving, a pencil sharpener, a book dropping, students using pencils with too much pressure, a register or fan humming, someone clearing their throat several times, and your voice giving instruction, plus background soft talking from other students, this can be *far* too much auditory input to process. Sometimes, just having desks too close

together, with all the accidental bumping into each other and knocking over of desk items and supplies can cause overload.

For some students, the visual stimuli of disorganization caused by **too much of anything** becomes the issue – not necessarily the particular items or where they are placed. The way we clean or freshen class rooms can be challenging – the scents of disinfectants or hand sanitizers, strong perfumes, aromas of food, smells of deodorants, body odor, or air fresheners can bring on the sensation of being overwhelmed with no way to escape. Many teachers like to have bright lights on for every area of their classroom, with most schools still using fluorescent lighting, but these can contribute to overload. In addition to these sensations, if a room is too warm or too cool, a student's clothing can feel different than when they first entered your room, and suddenly they are uncomfortable and fidgety, and you may not understand why.

The term *Sensory Processing Disorder* indicates that something isn't working as it typically should, so if a student has SPD, their body cannot process and regulate all the many types of sensory input they are taking in. These things lead to exhaustion, irritability, loss of focus, weakened executive function, confusion, shut down, and **definitely** affects the learning process, making learning much more challenging and frustrating.

I know this is a lot to just think about, but put yourself in a student's shoes – it is a huge amount to try to filter out. We need to keep the needs of the students in mind.

Still cheering you on!

Mrs. Cleaveland

# Sensory Overload



The state of being overwhelmed by too much sensory input that is difficult to manage, leading to irritability and sometimes outbursts.  
(Dutka & Kalyn, 2018.)

**1. Confusion**

2. Irritability

3. Stress

**4. Disinterest**

5. Anger

6. Strong Emotions

7. *Forgetfulness*

(Ahlers et al, 2017)

## Q. What does Sensory Overload look like?

### (Observable Characteristics)

A young boy leaning over his books, face down,  
**CRYING.**

A little girl looking out the window, completely  
**UNINTERESTED** in what her teacher is  
saying to the class.

A middle school student yelling “No” in a very  
**ANGRY** voice to his teacher.

A third-grade boy feeling overwhelmed and  
completely **STRESSED** in the classroom.

(South & Rodgers, 2016)

## Key Thoughts



**Behavior is communication.**

**Students are always communicating to us, but sometimes do not have words for what they are experiencing. We need to interpret what their behavior tells us.**



**We can help students by teaching them to regulate their emotions, and know how to help themselves when they need it.**



**Making simple accommodations for students with known sensory sensitivities benefits not only the student in mind, but other students as well, who may have subtle sensitivities.**



**One of our roles as a teacher is to set our students up for success.**

**Meeting sensory needs is an effective way to do that.**



**When we provide appropriate support to students with sensory needs, we model empathy for all students to follow.**

## Myths and Misunderstandings

### Sensory Overload: It's Not What You Think

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*Have you ever made these statements?*

1. Students can pay attention if they just try harder.
2. Students can be more organized if they listen more.
3. Students can decide to not become so upset.
4. Students can start the school day ready to learn.
5. Students can quietly sit at their desks for one class.

As teachers, we have all wished for students who pay attention, organize their belongings, don't overreact, come into our classrooms ready to learn, and sit quietly at

their desks all day. We sometimes expect this to happen and feel that all students could achieve it if they cared enough about school. The problem is that these things we feel about students are not always true. Some students just *cannot* accomplish these tasks without support from us, their teachers.

We know that as teachers, we are responsible for the learning that happens in our classrooms, and understanding what can shut learning down is vitally important for us to have the tools we need to help ALL students learn and experience academic success.

So what does *sensory overload* really mean and how do I know if this is what a student is experiencing? Let's think about it in a more personal way. What does it feel like to be overloaded by sensory input? One way to understand sensory overload is to hear it described from a 1<sup>st</sup> person perspective:

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“Sensory overload is when I feel overwhelmed by what I am seeing, the noises I am hearing, what is touching me, where I am in the room, how I am expected to respond, and what my emotions are telling me.” Carmen Cleaveland

## Research Concerning Sensory Overload



### Meeting the needs of these Students:

**\*Sensory over-responsiveness contributes to heightened anxiety and hyper-sensitivity to stress (South & Rodgers, 2016).**

**\*Sensory overload impairs executive function, making it difficult to finish a task or have sustained attention (Jager & Condry, 2017).**

**\*If a student is sleep-deprived, sensory reactions can be extremely heightened (Mercer, 2009).**

**\*Sensory overload makes it very difficult for a student to calm themselves and manage their emotions (Minahan & Rappaport, 2012).**

**\*An overly-responsive system causes cortisol levels to remain higher than normal and affects coping abilities in everyday decisions (Lytle & Todd, 2009).**

## Research-Based Interventions for Sensory Overload

1. Reduce auditory input by offering noise-cancelling headphones, ear buds with relaxing music, or white noise (Maich, Davies, & Rhijn, 2018).
2. Provide a shield from visual input through a physical barrier such as a tri-fold panel, study carrel, or cardboard boxes (Murray, Baker, Murray-Slutsky & Paris, 2009).
3. Create a relaxation area away from social pressure and sensory stimuli that has sensory items for relaxation (Minahan & Rappaport, 2012).

## Where Do I Begin in My Classroom?

With recent research, we better understand how the classroom environment can affect a student with ASD or SPD in negative ways that interfere with learning. Now it is up to us to decide what changes can be made in our classrooms that provide support for students who may be experiencing sensory overload. And ***can we realistically*** make these changes? Removing the barriers that prevent learning from happening could make enormous differences for your students with ASD or SPD, and may be as simple as the suggestions you will find below. I hope that these suggestions for simple but effective changes will help you to feel that you know what to do to take steps towards a more supportive classroom environment for students with ASD or SPD.

- Learn to notice the signs that your student may becoming overwhelmed, or establish a subtle way for them to tell you, then offer choices for relief.
- Allow them to move to a “calming area” that has noise-cancelling headphones, a soft pillow or bean bag chair, comforting visuals such as baby animals or nature pictures, and the option of white noise.
- Provide flexible seating so students have some control over what is near them or in front of them.
- Give them the choice to sit near a window or in the corner of the room by themselves.
- Offer an opportunity to take a walks to the drinking fountain to have a brief change of environment so they can “reset”.

Let's Check for Understanding!

## **Quiz #1 Sensory Overload**

1. What are some common behaviors that can indicate a student is experiencing too much sensory input?
2. If a student is having difficulty staying on task in their seat in a busy classroom, what are 2 options I could offer to them that may be helpful?
3. Several small groups are discussing a story ending and one student is looking nervous and stressed. How should I respond to this student?
4. What are 3 research-based interventions that are shown to help students with ASD or SPD manage their ability to have focused attention to an assignment?

## *Let's Check for Understanding!*

### **Quiz #1 Sensory Overload: ANSWERS**

1. What are some common behaviors that can indicate a student is experiencing too much sensory input?

Irritability, being anxious, disengaging, looking stressed and/or angry, out –of-seat often, or emotional outbursts that have no obvious reason when other students are calm – any or all of these can be an indication of a student having too much sensory input to process.

2. If a student is having difficulty staying on task in their seat in a busy classroom, what are 2 options I could offer to them that may be helpful? You can offer them a short break in a calming area with sensory supports, or they can be given noise-cancelling headphones at their seat to block auditory input. There should be a pre-determined time that students can visit the calming area to prevent the creation of another problem (such as avoidance of work), and you should also have a few things in mind that have worked in the past

with this student and then limit the choices to those strategies that have been successful in the past.

3. Several small groups are discussing details of a story and one student is looking nervous and stressed. How should I respond to this student? Ask them if they want to take a break and go to the drinking fountain (they may feel overwhelmed from noise and social pressure) or if they need to work by themselves in a quiet area. They may have trouble knowing what they need, and feel more pressure when asked to make a decision, so if they do not answer with a “yes” quickly, gently suggest what they should do that causes some of the pressure they are feeling to be removed.

4. What are 3 research-based interventions that are shown to help students with ASD or SPD manage their ability to have focused attention to an assignment? Three research-based interventions are: 1) Offer a short break to a calming area, 2) Offer noise-cancelling headphones or access to “white noise”, 3) Offer flexible seating so they have some control over the amount of sensory input they take in.

(Ismael et al, 2018)

## Section 3: Sensory Seeking

Dear Teacher,

You probably have witnessed odd behaviors multiple times from students that have made us scratch our heads and think “Why are they doing that”? While annoying, usually these behaviors just feel a little off, but not dangerous. However, these are the behaviors that we especially don’t want our students to do if we are having a guest speaker, if there is an assembly, or if the principal is observing us for the afternoon.

So why do some students behave in these ways? You read earlier in this manual that behavior is communication. Based on that idea, what could the odd behavior of a student licking the bottom of another student’s shoe tell us? Outside of other issues that are beyond the scope of this handbook, behavior such as this might be communicating that this particular student is craving more sensory input and they are willing to experience that input in unusual or socially awkward ways, if necessary.

If you're like most teachers, there have been times you've seen students do unusual things that don't seem to be a good idea for any reason, and your response might have caused embarrassment, shame, hurt, or even anger. These are not the interactions between ourselves and our students that build relationships and encourage growth. Sometimes these are the reasons that students feel isolated and hate school.

As you read through this section, keep in mind that students who crave more sensory input are experiencing a powerful instinct from within themselves to make sense of what they are seeing, hearing, feeling, and thinking. Sometimes more sensory input is needed for their nervous and cognitive systems to function more efficiently.

Think about your own classroom – in your setting, what might appear to be odd behavior to you might be the only coping strategies students who are sensory seeking know to do in order to help themselves think clearly and feel settled. This is why it is *so important for us as teachers* to understand what students who are seeking more sensory input need, so we can provide the opportunity for them to function more successfully in our classroom. As adults who get to make many decisions

every day, let's make sure we also include decisions that benefit our students who need more sensory input in order to be at their best! It's what we would want someone to do for us, right? ☺

Still cheering you on!

Mrs. Cleaveland

**Sensory  
Seeking**



**The state of needing more input in order to feel calm, have strong executive function, and manage emotions.**

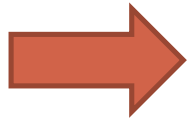
**Q. What Can Sensory Seeking behavior look like?**

### **(Observable Characteristics)**

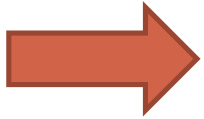
1. "He hugs the other students too hard."
2. "She always stands too close to the others in line."
3. "I catch him rolling on the floor a few times each day."
4. "Her Mom said she likes to lick the bottom of shoes."
5. "He is a little different - always wears snug clothing and keeps his jacket zipped up all the way every day."

(Menear & Nuemeier, 2015)

## Key Thoughts:



**Behavior is communication. What is this child telling me through their actions?**



**How can I support this student and help them be prepared to learn in the classroom?**



**What are some physical changes in the classroom setting that would be supportive and effective?**



**What needs to happen so other students understand this behavior and can help the student, without reacting in a negative way?**

# Myths and Misunderstandings Sensory Seekers: It's Not What You Think

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*Have you ever made these statements?*

- 1. Students can learn to sit quietly in their seats.**
- 2. Students can walk in a straight line without touching anyone in front or behind them.**
- 3. Students can work at the learning stations and use learning tools the way they are supposed to be used.**
- 4. Students can sit still on the rug without rolling around.**
- 5. Students can keep their hands to themselves.**

**We often feel that our job is to teach reading or math skills, and that our classroom is *not* P.E. class, meaning that there really should not be physical movement unless I am directing it as the classroom teacher.**

**While this is true on several levels, for students who need more sensory input in order to function in a typical way, they find themselves stuck between following what the teacher wants, and doing what their body is craving for sensory regulation and order. So what does *sensory seeking* really mean and how do I know if this is what a student is experiencing?**

**What does it feel like to crave more sensory input? One way to understand how a sensory seeker feels is to hear it described from a 1<sup>st</sup> person perspective:**

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**“I don’t want my teacher to be angry at me but sometimes I just have to get up and move! I don’t even know when I’m doing it! I can’t stop my body!”**

**Carmen Cleaveland**

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## Research Concerning Sensory Seekers



### Meeting the needs of these Students:

- They have a much higher threshold for sensory input, so they seek more sensory information from their surroundings (Murray, Baker, Murr-ray-Slutsky, & Paris, 2009).
- They seek sensation in order to help themselves regulate and process information (Ismael, Lawson, & Hartwell, 2018).
- They can struggle to develop friendships because sensory issues make socializing difficult due to misunderstandings about behavior (Howe & Stagg, 2016).
- They often miss the teacher's directions from being focused on movement or sound inputs (Ismael, Lawson & Hartwell, 2018).

## **Research-Based Interventions for Sensory Seekers**

- 1. Physical activity provides needed sensory input, which results in decreased disruptive behavior for short time periods (Menear & Nuemeier, 2015).**
- 2. Providing ways for regular physical movement increases on-task behaviors for academic tasks (Miramontez & Schwartz, 2016).**
- 3. Setting a routine of large muscle movements, such as wall-pushing, carrying a bag of heavy books, or jogging in place for a few minutes throughout the day (Murray, Baker, Murray-Slutsky & Paris, 2009).**

## Where Do I Begin in My Classroom?

You've just learned about students who have a need for increased sensory input and who will sometimes seek out that sensory input in ways that are not comfortable for everyone in a classroom setting. Therefore, it is not only wise, but proactive, for teachers to create ways for students to process more sensory input in ways that are appropriate and socially acceptable.

- Go to get a drink while wearing a weighted backpack
- Offer a weighted lap pad or blanket for shoulders
- Allow them to sit on a wobble seat /air cushion
- Ask them to carry heavy books across the room
- Allow them to do wall push-ups
- Allow them to sit in a cocooning bean bag chair
- Read while lying on the floor

## Let's Check for Understanding!

### Quiz #2: Sensory Seekers

1. A student keeps falling out of his chair, and seems to like doing it. What might be going on?

2. I have to watch one of my 1<sup>st</sup> grade girls all the time because she sometimes likes to lick the bottoms of her friends' shoes. How can I encourage her to stop doing this?

3. When we line up for recess or lunch, he usually gives someone a "hug", but he hugs them so tightly that they end up angry at him. How can I get him to stop doing this?

## *Let's Check for Understanding!*

### **Quiz #2: Sensory Seekers: Answers**

1. A student keeps falling out of his chair, and seems to like doing it. What might be going on? This student is likely needing more sensory input and when he falls on the floor and then moves around trying to get up, he is actually giving himself the sensory input he feels he needs. By falling out of his chair (which is not uncommon for children to do), he is getting the sensory input he craves, but he is doing it in a way that doesn't seem very unusual to his peers. From his perspective, he has found a socially acceptable way to receive more sensory input. One idea that might help this student have more control over how much sensory input he is receiving without causing disruption or appearing clumsy to his peers is to put a band around the legs of his chair. This stretchy band gives him the option to apply resistance pressure with his legs, but still remain in his chair and not disrupt the class.

2. I have to watch one of my 1<sup>st</sup> grade girls all the time because she sometimes likes to lick the bottoms of her friends' shoes. How can I encourage her to stop doing this? This student might also be craving more sensory input and has realized that licking the bottoms of shoes gives her the sensory input she wants. Her dilemma is that her friends think

it's weird and her teacher wants her to stop doing this. A good option for this student might be a sensory necklace that she can chew on without appearing socially awkward. This sensory necklace would allow her to play with her friends without feeling she needs to look for ways to get a shoe (or some other random item) to her mouth.

3. When we line up for recess or lunch, he usually gives someone a “hug”, but he hugs them so tightly that they end up angry at him. How can I get him to stop doing this? This student might be looking for sensory input that comes from feeling pressure on his body. While giving hugs to friends is not a negative thing, the way this student does it has made others feel uncomfortable and needs to be addressed. The teacher could provide a weighted lap blanket or a cocooning bean bag chair for this student to use during short intervals when they crave more sensory input that comes from pressure. This is a socially acceptable form of receiving the input he craves, without causing his friends to feel that they don't want him to be around them for fear of hugs that are too tight.

(Menear & Nuemeier, 2015)

## Section 4: Sensory Breaks

Dear Teacher,

At this point in the handbook, you've been reminded in several ways about the importance of students having their sensory needs met. You've seen references to research concerning students who have ASD or SPD and the ways that interventions in the general education classroom make learning more effective for them.

We will now focus on the need for and benefits of providing a Sensory Break for students. For this section, I want to encourage you to think about how a child is impacted when they are in a constant state of processing. For students who have ASD or SPD, processing and filtering sensory input, and fighting the urge to engage in an activity that would meet your sensory needs but might upset someone around you is *incredibly* exhausting and stressful. When you add any other variable, such as a lack of sleep, a minor physical ailment such as a sore throat, strong emotion from a poor social interaction, or anxiety that often accompanies a diagnosis of ASD, a student can easily

have too much going on to be ready to learn. It is at these times that giving a student the opportunity to take a “sensory break” is most needed and most beneficial.

For us as teachers, this might be the equivalent of “taking 5” just to step away from what we’re feeling if we sense we might be close to saying something we might regret or could become emotionally escalated. Although students don’t often have language for it, this is exactly what they need us to them with sometimes, and if we learn to recognize the signs, we can in turn support them better as they learn to “read” themselves better.

I continue to cheer you on as you decide what to do with all you’ve learned! Thank you for using my handbook – I hope it helps you be your best self as you lead and teach others! 😊

Mrs. Cleaveland

## **Sensory Break**



**A brief time away from sensory input and social pressure that allows the student to feel calmer and ready to learn.**

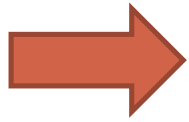
**Q. What does it look like when a student needs a Sensory Break?**

### **(Observable Characteristics)**

- 1. A student is visibly upset.**
- 2. A student is beginning to slam things around or tear up paper at their desk.**
- 3. A student is mumbling to themselves.**
- 4. A student is looking anxious or nervous.**
- 5. A student appears frustrated when other students are not reacting the same way.**
- 6. A student is staring out the window and not engaged.**

**(Jager & Condy, 2017)**

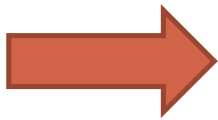
## Key Thoughts:



**Behavior is communication. What is this child telling me through their actions? What needs to happen?**



**What are ways I can support this student and help them feel organized and relaxed to learn in the classroom?**



**What sensory items should I add to the calming area in the classroom that would be supportive and effective?**



**How can I offer support to this student so other students understand their needs and can help the student, without reacting in a negative way?**

## Myths and Misunderstandings about Sensory Breaks: It's Not What You Think

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*Have you ever made these statements?*

- 1. They just want to get out of work.**
- 2. They want a reward for doing nothing – others have been working.**
- 3. It's just an excuse to play and be lazy.**
- 4. Most kids want to take a break – but do they need it?**

**As classroom teachers, your job is to keep your students safe, help them learn what they need to know, and help them learn how to recall it for a test and use it in “real life” context. If a student has sensory challenges, everything is more difficult for that student, including advocating for themselves. As their teacher, it is up to you to guide them to what they need and then to help them make a choice that supports their learning.**

**Before you say to yourself that it is not your responsibility to guide a student to what they need, please realize that this is exactly what teachers do every day. We do our best to teach students to read, comprehend, calculate, reason logically, and defend their opinions through writing. We do this because it is what the student needs, essential for that student to function independently, and also good for our society.**

**Being proactive for a student with specialized learning needs because of ASD or SPD is not only appropriate, but it is also practical. As managers of our own classroom, we know that what is good for a few students, is actually good for all students. Concerning students with ASD or SPD, offering a **sensory break** is key for them to experience success, is a preventative measure for avoiding an outburst, and it models empathy for others who have needs that are different from our own. (This is one of IDOE's SEL competencies.)**

**So what should it look like to take a **sensory break**? What does it feel like to need one? One way to understand the need for one is to hear it described from a 1<sup>st</sup> person perspective:**

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**“There is too much going on – noise,  
lights, everyone is asking me to do  
something – I just want to cry and  
sometimes I do, but I also get mad  
sometimes.”**

**Carmen Cleaveland**

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## Research Concerning Sensory Breaks



### Meeting the needs of these students:

- Providing a relaxing area for students with ASD or SPD to take a short break can help calm anxious, irritable mindsets (Lytle & Todd, 2009).
- Providing a “relaxation station” for students with ASD or SPD encourages self-regulation of their emotions (Maich, Davies & Rhijn, 2018).
- Offering anxiety-reducing breaks at regular intervals throughout the day helps with anxiety management and can prevent behavioral incidents (Minahan & Rappaport, 2012).
- Offering the option to take a walk around the gym or other “safe zone” gives students with ASD or SPD the opportunity to greatly reduce their anxiety, along with the strong likelihood that they will experience a positive social encounter (Dutka & Kalyn, 2018).

- **Providing a break from the auditory challenges for students with ASD or SPD can lead to better academic results when given regularly (Howe & Stagg, 2016).**
- **Providing sensory breaks to students with ASD or SPD can result in longer attention, more class engagement, and improved classroom focus (Kinnealey, Pfeiffer, Miller, Roan, Shoener, & Ellner, 2012).**

## Research-Based Sensory Breaks for Students

1. Giving students with ASD or SPD short breaks from classroom noises and social pressures to walk a few laps in the gym results in more frequent appropriate behaviors and better focus in the classroom (Dutka & Kalyn, 2018).
2. After spending time in a quiet area set aside for relaxation, students with ASD or SPD are able to accomplish more after stress levels have been reduced (Lytle & Todd, 2002).
3. Providing sensory and comfort items in a relaxation station inside the classroom offer students with ASD or SPD the time to cope with heightened sensory stress and slowly relax for better emotion regulation (Maich, Davies & Rhijn, 2018).

## Where do I begin in My Classroom?

**Now that we have a better understanding of the sensory needs of students with ASD or SPD, we realize that, due to their sensory sensitivities, they are in a heightened state of stress for most of the time we have them in class. While we still have the same goals for them that we have for all our students, the path to helping them experience academic and social successes will look slightly different, but in a way that promotes kindness, empathy, and consideration of other people's perspective. After looking at the research concerning sensory breaks, we can now confidently plan for our students with sensory challenges because we know more about how to support them.**

**While our students with ASD or SPD will be the obvious beneficiaries of relaxation stations or calming areas (there is a variety of names that you can call this specially designated spot in your classroom), other students will most likely benefit from having the option to spend a short time in a quieter, calmer environment that allows students to control how much**

**auditory or visual stimuli they are experiencing.**

**Many people are affected by sensory sensitivities that are not aware of how much it accounts for feelings of frustration, irritability, difficulty in focus, and general irritability. Providing these comforting, relaxing breaks will enhance the learning capability in our classrooms and add to the quality of the learning experience for all students.**

- Designate an area or a corner (preferably close to a window) that can be a calming area. Clear away any items that are stored near it and be very intentional in what goes in that area.**
- Choose 2-3 items for each sense: for the sense of touch, have a soft stuffed animal (or 2) and a pillow; for visual input, have calming, peaceful pictures or a few books with the same theme, for auditory input; offer noise-cancelling headphones or earbuds that can play a white noise or soft classical music; for those with olfactory sensitivities, offer an essential oil roll-on (such as lavender or eucalyptus)**

**that can be used in that area only; for the desire to feel pressure (proprioceptive needs), include a weighted lap pad, and to offer a break from too much classroom light or a busy visual from that place, offer a blindfold or hat that can be pulled down over their eyes to block out the busy visuals all around the room.**

- Pre-arrange a way for students to let you know when they need to use physical movement as a way to take a sensory break, and then allow them to walk a few laps around the gym– this should be pre-planned and carried out with the help of an aide or other adult.**
- Allow students to choose to sit away from the center of the room by offering flexible seating as an option to all students. This will allow students to respond to their current sensory needs.**

## Let's Check for Understanding!

### **Quiz #3: Sensory Breaks**

1. Our class has been working in small groups and will be taking a brief quiz in the next few minutes – should I give my student with ASD or SPD a break to go walk with the aide for several minutes?
2. We just took a chapter test and after finishing, students are able to read silently until class is over. Should I check with my student with ASD or SPD to make sure they remember they can visit the quiet area?
3. There have been a few unexpected announcements over the intercom and some loud laughter from within the classroom. The class will begin working on an independent assignment soon. Should I subtly let my student with ASD or SPD know they can work at any location within the room and can also wear noise-cancelling headphones?

## *Let's Check for Understanding!*

### **Quiz #3: Sensory Breaks: ANSWERS**

1. Our class has been working in small groups and will be taking a brief quiz in the next few minutes – should I give my student with ASD or SPD a break to go walk with the aide for several minutes? *A lot of sensory information has been happening within your classroom and your student is probably overwhelmed right now and might not even be able to recognize that they need a break for a few minutes. With the assistance of an aide, your student should walk to the gym and take a few laps around, plus also get a drink of water before coming back into the class and taking the quiz.*

2. We just took a chapter test and after finishing, students are able to read silently until class is over. Should I check with my student with ASD or SPD to make sure they remember they can visit the quiet area? *The act of taking a test and recalling all the date, plus the pressure of others finishing around you can feel very isolating. Your student with ASD or SPD is probably very stressed and tired and might not*

even remember that there is an area designated just for helping students re-group after being engaged and working hard on a test. Being given the choice will feel caring, whether they need to spend a few minutes there at that point or not. It will also help to strengthen your social relationship, which will be beneficial for your student.

**3.** There have been a few unexpected announcements over the intercom and some loud laughter from within the classroom. The class will begin working on an independent assignment soon. Should I subtly let my student with ASD or SPD know they can work at any location within the room and can also wear noise-cancelling headphones? It is always the student's choice to utilize a calming area, but since there has already been a lot of auditory input, the student might feel better prepared to do an assignment after having a break from the noise. They also might be able to handle all the noise by just moving to another part of the room, but having options will enable the student to feel in control of the situation and might approach the assignment with more confidence. Offering choices to students always helps the relationship and models social skills for all students.

(Dutka & Kalyn, 2018)

## Section 5: References

- Ahlers, K., Gabrielsen, T., Lewis, A., Litchford, A. (2017). Supporting individuals with autism spectrum disorder in understanding and coping with complex social emotional issues, *School Psychology International*, 4-19.
- De Jager, P., Condry, J. (2017). The influence of executive function challenges on the behavior adaptation of one learner with autism spectrum disorder, *South African Journal of Childhood Education (SAJCE)*, 7(1).
- Dutka, C., Kalyn, B. (2018). Exploring strategies for anxiety management in autism spectrum disorder students through physical activity, *Journal of Higher Education Theory and Practice*, 18(1), 141-151.
- Ismael, N., Lawson, L., Hartwell, J. (2018). Relationship between sensory processing and participation in daily occupations for children with autism spectrum disorder: A systematic review of studies that used Dunn's sensory processing framework, *The American Journal of Occupational Therapy*, 72, 7203205030.
- Menear, K., Neumeier, W. (2015). Promoting physical activity for students with autism spectrum disorder: barriers, benefits, and strategies for success, *Journal of Physical Education, Recreation & Dance*, 86(3), 43-48.
- Mercer, L. (2009). Understanding the literacy difficulties of students with asperger's syndrome in middle years' classrooms, *Literacy Learning: The Middle Years*, 17(2), 11-21.
- Miramontez, S., Schwartz, I. (2016). The effects of physical activity on the on-task behavior of young children with autism spectrum disorders, *International Electronic Journal of Elementary Education, suppl. Special Issue Autism Spectrum Disorder (ASD)*, 9(2), 405-418.

## **CHAPTER 6**

### **DISCUSSION AND REFLECTION**

#### **Discussion**

The purpose of this study project was to investigate the interventions used by general education teachers to support students diagnosed with Autism Spectrum Disorder (ASD) and to determine how effective teachers viewed the interventions they have used were in helping students with ASD manage their behavior and emotions. This study and survey were guided by the findings of previous research concerning interventions and strategies to support students diagnosed with ASD and Sensory Processing Disorders (SPD). The handbook created for teachers (Chapter 5) was also influenced by current research and the responses of eighteen teachers who participated in the survey conducted by the investigator. This survey was presented to teachers who have been teaching for an average of 17 years, and of whom 50% have obtained a Master's degree in education. The setting for the survey was a small Parochial school in the Midwest with approximately 335 students.

The survey completed by eighteen elementary and middle school teachers had a total of eight questions relating to the effectiveness of interventions used in their classrooms and inquired about specific interventions such as physical movement, sensory breaks, and the immediate and overall benefits teachers observed as a result of using these interventions. Specific comments by teachers gave insight about their approach for making short breaks to calming areas available for their students with ASD, and the priority that they gave to providing students the opportunity to engage in physical movement as a way to reset mood or focus during classroom activities.

## **Reflections**

After analyzing the responses to specific questions from teachers, one of the concerns was the lack of teachers offering students the option to use flexible seating as a way to cope with the challenges of sensory sensitivities. Of eighteen teachers, 3 (17%) chose flexible seating as the *least effective* intervention of those they offered students with ASD or SPD in their classroom. These responses might indicate that further training for general education teachers concerning the use of flexible seating for students with ASD or SPD is needed. Another concern that resulted from the survey was the expressed desire of teachers (17%) to provide a calming area to their students, but at the same time expressing that it was not an option due to space limitations within their classrooms. This response could indicate that further training about using space in creative ways to provide quiet breaks is needed.

## **Strengths of This Study**

Research shows that students diagnosed with ASD or SPD benefit from being able to take a break from the sensory input they are managing, with some of these benefits being an immediate, more attentive focus on assignments and/or better management of emotions after having a short time away from the common stimulus of the general education classroom (Minahan & Rappaport, 2012). A strength to this survey study was to provide the respondents an opportunity to describe how a quiet or calming area for students with ASD or SPD is provided in their classroom. With this particular question, teachers were given a way to document and describe specific details about what they are providing concerning a calming area for students with ASD or SPD, including what this area looks like and what items students will find in it. The answer rate for this question that concerned details about a quiet or calming area offered in their classroom was very high (100%), with teachers describing specific details about how a place for

students to have a quiet time away from other students is provided. Although the answers for this question varied in the types of quiet or calming areas that teachers provided information for, all of the teachers provided an answer of some kind for this question, which indicates that teachers wanted to express themselves about how they are supporting students with ASD or SPD. Of the three open-ended questions on the survey, this was the only question that was answered by 100% of the respondents.

### **Limitations of This Study**

The survey used to gather information and opinions concerning the effectiveness of interventions provided as support for students diagnosed with ASD provided teachers the opportunity to share and explain their experiences with interventions they had used with their students. Although there were a few respondents who left questions unanswered, the majority of surveys were completed in entirety.

One of the limitations of this research study is that the sample that provided information for the survey was relatively small. The faculty of the school used for the survey and for investigative purposes on the topic of interventions used to support students with ASD is a small team of teachers (25 total) with the final participation rate for the survey being eighteen teachers. Another limitation of this study that is perceived by the investigator as a concern is the lack of diversity; within the pool of teachers surveyed, and also in the student body of the school where the teachers were employed.

A third limitation that the investigator has observed is the possibility for misunderstanding on the part of the teachers concerning the definition of “flexible seating” as it was stated in the survey. Based upon the responses of several teachers, it is likely that there are at least two ideas, possibly three, that were represented in the responses of teachers concerning

flexible seating and what flexible seating looks like when implemented in a classroom setting with students who have been diagnosed with ASD.

A fourth limitation to this survey concerns the perception of noise-cancelling headphones as they were presented in the survey. While there are many different models of noise-cancelling headphones, as well as many levels of quality and comfort, none of these differences were specified when noise-cancelling headphones were inquired about as an intervention for students with ASD. It is unknown what specific type of noise-cancelling headphone each respondent had in mind when answering questions related to them, and due to the many varieties and options for comfort and quality of headphones used as sound barriers, it is unknown how effective this group of teachers might have believed them to be if given more details about the manufacturer and the quality of the noise-cancelling headphones that are currently available for use in classrooms with students who have a need for less sensory input. Referring to a high quality brand and model of noise-cancelling headphones in the survey, along with specific information about their capacity to block noise, may have potentially affected the responses of teachers for the questions referring to these as a supportive intervention.

### **Recommendations for Further Study**

The potential for misunderstanding among general education teachers concerning the model and quality of noise-cancelling headphones could be addressed in future studies, given the variety of stylish and high-quality options that are available to students. New ways to inform general education teachers about flexible seating and the ways this intervention can help students with ASD or SPD regulate their emotions and have more focused attention would be important to focus on for future research. Flexible seating can be implemented in a variety of ways, and

teachers have great freedom in how they decide to use this specific intervention to support their students with ASD or SPD.

Lastly, helping general education teachers understand how to creatively use the space included in their classroom to set aside a quiet, calming area and understanding more about the barriers they perceive there are for providing these spaces is a topic that future studies could investigate. If general education teachers knew how important calming areas can be for some students, their passion and drive to see students succeed might fuel a strong desire to find new and creative ways to engineer and offer spaces such as these within their classrooms, regardless of how much square footage is within the classroom walls.

*Interventions for Students Diagnosed with Autism Spectrum Disorder: A Handbook for Teachers* was created to support teachers as they support their students with sensory sensitivities. This handbook can be used to inform and inspire general education teachers to make the small changes necessary for their students with ASD or SPD to experience success in their classrooms. The interventions and strategies presented in the handbook are research-based and designed to support the unique learning needs of students with these diagnoses.

## REFERENCES

- Ahlers, K. P., Gabrielsen, T. P., Lewis, D., Brady, A. M., & Litchford, A. (2017). Supporting individuals with autism spectrum disorder in understanding and coping with complex social emotional issues, *School Psychology International*, 4-19.
- Ashburner, J. K., Rodger, S. A., Ziviani, J. M., & Hinder, E. A. (2014). Optimizing participation of children with autism spectrum disorder experiencing sensory challenges: A clinical reasoning framework: Optimizer la participation des enfants atteintes d'un trouble du spectre autistique ayant des troubles sensoriels: Un cadre pour le raisonnement clinique, *Canadian Journal of Occupational Therapy*, 81(1).
- Bremer, E., Crozier, M., & Lloyd, M. (2016). A systematic review of the behavioural outcomes following exercise interventions for children and youth with autism spectrum disorder, *Autism*, 20(8).
- Crosland, K., & Dunlap, G. (2012). Effective strategies for the inclusion of children with autism in general education classrooms, *Behavior Modification*, 16(2).
- Childre, A. L., & Van Rie, G. L. (2015). Mentor teacher training: A hybrid model to promote partnership in candidate development. *Rural Special Education Quarterly*, 34(1), 10-16.
- Dunn, W., Little, L., Dean, E., Robertson, S., & Evans, B. (2016). The state of the science on sensory factors and their impact on daily life for children: A scoping review. *OTJR: Occupation, Participation, and Health*, 36, 35-265.
- Dutka, C., Kalyn, B. (2018). Exploring strategies for anxiety management in autism spectrum disorder students through physical activity, *Journal of Higher Education Theory and Practice*, 18(1), 141-151.

- Friedlander, D. (2009). Sam comes to school: including students with autism in your classroom, *The Clearing House*, 82(3), 141-144.
- Howe, F., & Stagg, S. (2016). How sensory experiences affect adolescents with an autistic spectrum condition within the classroom, *Autism Developmental Disorder*, 46, 1656-1668.
- Ismael, N., Lawson, L., & Hartwell, J. (2018). Relationship between sensory processing and participation in daily occupations for children with autism spectrum disorder: A systematic review of studies that used Dunn's sensory processing framework, *The American Journal of Occupational Therapy*, 72, 7203205030.
- Kinnealey, M., Pfeiffer, B., Miler, J., Roan, C., Shoener, R., & Ellner, M. (2012). Effect of classroom modification on attention and engagement of students with autism or dyspraxia. *American Journal of Occupational Therapy*, 66, 511-519.
- Lee, K., Lambert, H., Wittich, W., & Kehayia, E. (2016). The use of movement-based interventions with children diagnosed with autism for psychosocial outcomes-A scoping review, *Research in Autism Spectrum Disorders*, 24, 52-67.
- Lytle, R., & Todd, T. (2009). Stress and the student with autism spectrum disorders: Strategies for stress reduction and enhanced learning, *TEACHING Exceptional Children*, 41(4), 36-42.
- Maich, K., Davies, A., Rhijn, T. (2019). A relaxation station in every location, *Intervention in School and Clinic*, 54(3), 160-165.
- Mercer, K. Louise, (2009). Understanding the literacy difficulties of students with asperger's syndrome in middle year's classrooms, *Literacy Learning: The Middle Years*, 17(2), 11-21.

- Menear, K. S., & Neumeier, W. H. (2015). Promoting physical activity for students with autism spectrum disorder: Barriers, benefits, and strategies for success, *Journal of Physical Education, Recreation, & Dance*, 86(3), 43-48.
- Mills, C., Chapparo, C., & Hinitt, J. (2016). The impact of an in-class sensory activity schedule on task performance of children with autism and intellectual disability: A pilot study, *British Journal of Occupational Therapy*, 79(9), 530-539.
- Minahan, J., and Rappaport, N. (2012). Anxiety in students: a hidden culprit in behavior issues: identifying the triggers for inappropriate behaviors and teaching children more desirable responses can be part of intervention plans in any classroom. *Phi Delta Kappan*, 94(4)1-7.
- Miramontez, S., Schwartz, I. (2016). The effects of physical activity on the on-task behavior of young children with autism spectrum disorders, *International Electronic Journal of Elementary Education, suppl. Special Issue Autism Spectrum Disorders*, 9(2), 405-418.
- Murray, B., Baker, P., Murray-Slutsky, C., Paris, B. (2009). Strategies for supporting the sensory-based learner, *Preventing School Failure*, 53(4), 245-251.
- Noddings, A. (2017). When sensory sensitivity requires intervention: Assessment and treatment of sensory-sensitive children, *Montessori Life*, 29, 38-43.
- Ouellet, B., Carreau, E., Dion, V., Rouat, A., Tremblay, E., & Voisin, J. (2017). Efficacy of sensory interventions on school participation of children with sensory disorders: A systematic review, *American Journal of Lifestyle Medicine*, 20, 1-9.
- De Jager, P., & Condry, J. (2017). The influence of executive function challenges on the behavioural adaptation of one learner with autism spectrum disorder, *South African Journal of Childhood Education (SAJCE)*, 7(1).

Silva, L., & Schalock, M. (2012). Sense and self-regulation checklist, a measure of comorbid autism symptoms: Initial psychometric evidence, *American Journal of Occupational Therapy*, 66(2), 177-185.

South, M., & Rodgers, J. (2017). Sensory, emotional, and cognitive contributions to anxiety in autism spectrum disorder, *Frontiers in Human Neuroscience*, 11(20).

## **APPENDIX A: PRINCIPAL PERMISSION LETTER**

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September 30, 2019

To Whom it May Concern:

Mrs. Carmen Cleaveland has asked for and has received permission to survey the teachers and staff of \_\_\_\_\_ as partial fulfillment for the requirements of her classwork.

Should you have any questions or concerns, please feel free to contact me at (260) 493-2502, extension 350.

Sincerely,

## **APPENDIX B: RECRUITMENT LETTER**

Dear Colleague,

In a few weeks, I will be conducting a survey for a special project I am completing as part of the requirements for the Master's program at Purdue Fort Wayne. In the survey, I will be seeking information about the interventions that you use in your classroom for students who have been identified with Autism Spectrum Disorder, and how effective you think those interventions are in helping students with ASD manage their emotions. Your participation in this survey is completely voluntary and you may choose to not participate. If you do decide to participate, the data I gather from this survey, along with data from previous studies, will be used for developing a handbook for general education teachers and special education teachers about different sensory interventions and their effectiveness in general education classrooms.

In one week, I will email you an invitation to participate in a one-time, anonymous survey that will ask you about the sensory strategies that you use for students in your classroom that have students with ASD. You will be asked to complete the survey, print it, place it in a sealed envelope, then put it in my school mailbox. After one week, I will send a reminder email to all teachers, if I do not have all the surveys returned. Mr. Weber has given permission for me to invite you to participate in this one-time, anonymous survey. Thank you for your consideration in this project.

Sincerely,

Carmen Cleaveland

## **APPENDIX C: REMINDER EMAIL**

Dear Colleague,

Recently, you received an email from me, inviting you to participate in a survey for a special project I am completing as part of the requirements for the Master's program at Purdue Fort Wayne. One week ago, I sent another email to you, with the survey attached. In the survey, I am seeking information about the interventions you use or have used in your classroom for students who have been identified as having Autism Spectrum Disorder (ASD), and how effective you think those interventions have been for helping students with ASD manage their emotions. Your participation in this survey is completely voluntary and you may choose not to participate. Just as a reminder, if you decide to participate, the data I gather from this survey, along with data from previous studies, will be used for developing a handbook for general education teacher and special education teachers about different sensory interventions and their effectiveness in general education classrooms.

My last day to collect completed surveys will be this Friday. If you wish to participate, please complete the survey you received last week, print it and place it in my school mailbox in a sealed envelope with my name on it. Thank you for your consideration in this project.

Sincerely,

Carmen Cleaveland

## APPENDIX D: SURVEY

Dear Fellow Teachers,

Thank you for taking time to complete this survey about interventions for students with Autism Spectrum Disorder (ASD). Your feedback is valuable to me and will be used as part of the data for a handbook for teachers about sensory interventions with students who have ASD and other sensory challenges. After you complete the survey, please print it, place in a sealed envelope with my name on it, then put it in my mailbox in the school office.

### Research Questions:

1. **What are the most common interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, etc.) used by general education teachers for students with ASD?**

Ouellet, B., Carreau, E., Don.V., Rouat, A., Tremblay, E., & Voisin, J. (2017). Efficacy of sensory interventions on school participation of children with sensory disorders: A systematic review, *American Journal of Lifestyle Medicine*, 20, 1-9.

2. **How effective do general education teachers perceive these interventions (flexible seating, noise-cancelling headphones, physical movement, short breaks to a calming area, etc.) to be for students with ASD in managing their behavioral and emotional reactions?**

Dunn, W., Little, L., Dean, E., Roberston, S., Evans, B. (2016). The state of the science on sensory factors and their impact on daily life of children: a scoping review. *OTJR: Occupation, Participation, and Health*, 36, 35-265.

### Survey Questions

1. What are the interventions you provide for students in your classroom who have Autism Spectrum Disorder (ASD)? This can be over the course of your teaching career – not specific to this school year. (Please circle all that apply.)

- a) Flexible Seating
- b) Noise-cancelling Headphones
- c) Physical Movement
- d) Short Breaks to a Calming Area
- e) Other (please specify) \_\_\_\_\_

Ouellet, B., Carreau, E., Don.V., Rouat, A., Tremblay, E., & Voisin, J. (2017). Efficacy of sensory interventions on school participation of children with sensory disorders: A systematic review, *American Journal of Lifestyle Medicine*, 20, 1-9.

2. Of these interventions, which one has been the **most effective** overall for helping your students with ASD successfully manage their behavior and emotions in your classroom? (Please circle one)

- a) Flexible Seating
- b) Noise-cancelling Headphones
- c) Physical Movement
- d) Short Breaks to a Calming Area
- e) Other (please specify) \_\_\_\_\_

Dunn, W., Little, L., Dean, E., Roberston, S., Evans, B. (2016). The state of the science on sensory factors and their impact on daily life of children: a scoping review. *OTJR: Occupation, Participation, and Health*, 36, 35-265.

3. Based on the intervention you listed, please rate how helpful this intervention was for helping your student or students manage their behavior and emotions while in your classroom. (Please circle one.)

1=Very Helpful 2=Helpful 3=Neutral 4= Unhelpful 5+Very Unhelpful

Friedlander, D. (2009). Sam comes to school: Including students with autism in your classroom. *The Clearing House*, 82(3), 141-144.

4. Which intervention has been the **least effective** overall for helping your students with ASD manage their behavior and emotions in your classroom?  
(Please circle one.)

- a) Flexible Seating
- b) Noise-cancelling Headphones
- c) Physical Movement
- d) Short Breaks to a Calming Area
- e) Other (please specific) \_\_\_\_\_

Lytle, R. & Todd, T. (2009). Stress and the students with autism spectrum disorders: Strategies for stress reduction and enhanced learning, *TEACHING Exceptional Children*, 414(4), 36-42.

5. What is the strategy or intervention that you use **most often** to help students with ASD manage their behavior or emotions in your classroom?  
(Please circle one.)

- a) Flexible Seating
- b) Noise-cancelling Headphones

- c) Physical Movement
- d) Short Breaks to a Calming Area
- e) Other (please specify) \_\_\_\_\_

Ashburner, J., Rodger, S., Ziviani, J., & Hinder, E. (2014.) Optimizing participation of children with autism spectrum disorder experiencing sensory challenges: A clinical reasoning framework: Optimiser la participation des enfants atteints d'un trouble du spectre autistique ayant des troubles sensoriels: Un cadre pour le raisonnement clinique, *Canadian Journal of Occupational Therapy*, 81(1).

6. If you allow students to choose physical movement as a sensory intervention, do you have a designated area in your classroom for it and what are the designated choices for movement?

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Brenner, E., Crozier, M., & Lloyd, M. (2016). A systematic review of the behavioural outcomes following exercise interventions for children and youth with autism spectrum disorder, *Autism*, 20(8).

7. Do you have a quiet or calming area set up in your classroom that students with ASD (or others with sensory sensitivities) can go to for short breaks, and if so, how would you describe this quiet or calming area?

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Minahan, J., & Rappaport, N. (2012). Anxiety in students: a hidden culprit in behavior issues: identifying the triggers for inappropriate behaviors and teaching children more desirable responses can be part of intervention plans in any classroom, *Phi Delta Kappan*, 94(4).

8. How would you describe the way the sensory interventions you use in your classroom benefit your students, both immediately and over time?

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Petronell, J., & Condry, J. (2017). The influence of executive function challenges on the behavioural adaptation of one learner with autism spectrum disorder, *South African Journal of Childhood Education (SAJCE)* 7(1).

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**Thank you again for taking time to participate in this survey. Your input is very helpful for me as I complete a Master's program in Special Education at Purdue University Fort Wayne. After completing this survey, please print it, place it in a sealed envelope with my name on it, then put it in my mailbox in the school office.**

*Thank you for your help!*

**Mrs. Carmen Cleaveland**

## APPENDIX E: IRB LETTER



**This Memo is Generated From the Purdue University Human Research Protection Program System, Cayuse.**

**Date:** October 31, 2019

**PI:** JEONG-IL CHO

**Department:** PFW EDUC STUDIES

**Re:** Initial - IRB-2019-543

*Investigation of Research-Proven Comfort and Support Strategies for Students with Autism Spectrum Disorder*

The Purdue University Human Research Protection Program (HRPP) has determined that the research project identified above qualifies as exempt from IRB review, under federal human subjects research regulations 45 CFR 46.104. The Category for this Exemption is listed below. Protocols exempted by the Purdue HRPP do not require regular renewal. However, The administrative check-in date is **October 31, 2022**. The IRB must be notified when this study is closed. If a study closure request has not been initiated by this date, the HRPP will request study status update for the record.

Specific notes related to your study are found below.

**Decision:** Exempt

**Category:** Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

**Findings:** Exempt

**Research Notes:**

Any modifications to the approved study must be submitted for review through Cayuse IRB. All approval letters and study documents are located within the Study Details in Cayuse IRB.

**What are your responsibilities now, as you move forward with your research?**

**Document Retention:** The PI is responsible for keeping all regulated documents, including IRB correspondence such as this letter, approved study documents, and signed consent forms for at least three (3) years following protocol closure for audit purposes. Documents regulated by HIPAA, such as Release Authorizations, must be maintained for six (6) years.

**Site Permission:** If your research is conducted at locations outside of Purdue University (such as schools, hospitals, or businesses), you must obtain written permission from all sites to recruit, consent, study, or observe participants. Generally, such permission comes in the form of a letter from the school superintendent, director, or manager. You must maintain a copy of this permission with study records.

**Training:** All researchers collecting or analyzing data from this study must renew training in human subjects research via the CITI Program ([www.citiprogram.org](http://www.citiprogram.org)) every 4 years. New personnel must complete training and be added to the protocol before beginning research with human participants or their data.

**Modifications:** Change to any aspect of this protocol or research personnel must be approved by the IRB before implementation, except when necessary to eliminate apparent immediate hazards to subjects or others. In such situations, the IRB should still be notified immediately.

**Unanticipated Problems/Adverse Events:** Unanticipated problems involving risks to subjects or others, serious adverse events, and noncompliance with the approved protocol must be reported to the IRB immediately through an incident report. When in doubt, consult with the HRPP/IRB.

**Monitoring:** The HRPP reminds researchers that this study is subject to monitoring at any time by Purdue's HRPP staff, Institutional Review Board, Research Quality Assurance unit, or authorized external entities. Timely cooperation with monitoring procedures is an expectation of IRB approval.

**Change of Institutions:** If the PI leaves Purdue, the study must be closed or the PI must be replaced on the study or transferred to a new IRB. Studies without a Purdue University PI will be closed.

**Other Approvals:** This Purdue IRB approval covers only regulations related to human subjects research protections (e.g. 45 CFR 46). This determination does not constitute approval from any other Purdue campus departments, research sites, or outside agencies. The Principal Investigator and all researchers are required to affirm that the research meets all applicable local, state, and federal laws that may apply.

If you have questions about this determination or your responsibilities when conducting human subjects research on this project or any other, please do not hesitate to contact Purdue's HRPP at [irb@purdue.edu](mailto:irb@purdue.edu) or 765-494-5942. We are here to help!

Sincerely,

Purdue University Human Research Protection Program/ Institutional Review Board

## APPENDIX F: TABLES

Table 1. Survey results for Question 6: If you allow students to choose physical movement as a sensory intervention, do you have a designated area in your classroom for it and what are the designated choices for movement?

Respondents	Yes or No	Comments
#1	Blank	Blank
#2	No	Use iPad-Gonoodle
#3	Blank	Within the calming area (restroom hall), there is a card set that includes movement options like: walk, jumping jacks, push a wall, stretch
#4	Blank	Usually I put students in the back of the room where they have space to move without distracting others
#5	Yes	Area varies, depends on the child. Movement also varies-just get up & walk, sit w/ a buddy, shoot a nerf basketball
#6	Blank	Blank
#7	Blank	I don't have enough space to have an area for movement, but students can step outside the door and do stretches or push against the wall.
#8	Blank	blank
#9	Blank	Students can walk around the room or to the end of the hall and back a few times. (My room is 15 feet from the end of the hall.)
#10	No	I allow students to walk to the water fountain or "take a note" to the office.
#11	Blank	They have done both = near seat and assigned area. Movement at desk is to stand up rather than sit, use sensory object as stress relief, Velcro under desk.
#12	Yes	The back of the classroom is an open area.
#13	Yes	Our aide can take a student for a walk in the hallway or around the gym when students need to move.
#14	Blank	Students are able to move (walk) around the classroom but I don't have room for exercises to take place.
#15	N/A	Students go to the back where I have a tall table. They can pace, stand, and use small movements that aren't distracting to others.

#16	Blank	Blank
#17	Blank	I have a carpeted area.
#18	Blank	My classroom incorporates movement in all areas, so there is not a designated spot.

Table 2. Results of Question 7: Do you have a quiet or calming area set up in your classroom that students with ASD (or others with sensory sensitivities) can go to for short breaks, and if so, how would you describe this calming area?

Respondents	Yes or No	Comments
#1	No	I work with small groups of students for short periods of time (20-40 minutes).
#2	Blank	I try, but I don't have a lot of room. The calming area has fidgets, sensory objects.
#3	Blank	It is a restroom hall between 2 classrooms. We have 2 posters about feelings + choices. There is a basket of sensory helps, a ring of strategy cards, and a baby doll.
#4	Blank	I do not have an area. I try to make my whole room calming.
#5	Not currently	Generally, a cozy/fun chair on a rug – maybe a lamp.
#6	Blank	My students w/autism can take short breaks in the Resource Room twice a day if needed for 5-7 minutes each time. It is close to my room and gives them privacy from classmates and a variety of options while there.
#7	Blank	I have a reading corner that they can choose to sit in – it is at the back of the room with all students facing toward the front of the room.
#8	Blank	I have a bean bag chair by the bookshelves that is off to the side. It gives students privacy to do deep breathing, squeeze a stress ball, or look at pictures/books.
#9	Blank	Students are able to choose to sit at a table by themselves toward the back of the room if they want to be away from the others.
#10	Blank	I have a corner with a calming basket of various comfort items.
#11	Yes	I have 2 extra desks. If they need a break they can work at those desks.
#12	Blank	It is a table or chairs in the back of my room.
#13	Blank	I have a rug and a few padded chairs in one corner by the window. Students can sit in that area for a break or to read. There are a few fidget toys and some stuffed animals there.
#14	Yes	It has a bean bag chair and some “comfort” items in a basket. It also includes books on tape and instrumental (classical) music options.
#15	Blank	I have a tall table by my desk in the back. It is not quiet or anything special for calming but it allows them their own space to calm down.
#16	Blank	There are large pillows by the window off to the side. Students know they can go sit there to complete work or

		read when assignments are finished, or when they need to have space away from other students.
#17	Blank	I use the drinking fountain and another teacher.
#18	Yes	It's set up in a cubby and kids have access to sensory bottles, squeeze balls, stuffed animals, and books.

Table 3. Results of Question 8: How would you describe the way sensory interventions you use in your classroom benefit your students, both immediately and over time?

Respondents	Comments
#1	By keeping them calm + organized w/ the visual cues/schedules. They know what to express and how. This helps both immediately and overtime. Gives consistency.
#2	Immediately- calm student. Over time-safe zone/become comfortable in classroom knowing there is an outlet.
#3	Any student can use our calming spot at any time. Some students never visit it, some use it occasionally and others are frequent users. ☺ It seems to help most of us most of the time.
#4	They give the child an outlet and they know that in my room they can wander in the back if needed. Knowing what they can do when upset or fidgety helps them feel comfortable over time.
#5	Seems to be calming and aids focusing for a longer time than w/out. Interventions break up time into workable sections.
#6	It helps with anger and frustration reduction–also helps them focus better.
#7	Students are encouraged to let me know when they are needing a break and to do something different. I think just knowing that they can move away from other students if needed, helps them not feel as stressed.
#8	Students know they have choices about their behavior and can choose actions that will help them.
#9	During stressful days, they are able to sit away from other kids and this helps them have some control over their stress level.
#10	Students learn to trust that I care about how they are doing and what might help them.
#11	Immediately- give relief from situation, calming effect on students. Over time-students have begun to try calming techniques on own in other situations using what they knew in our class, and applied it to others.
#12	They benefit my students greatly! These students need special tools & interventions to help them get through the day. ☺
#13	It helps them cope with the stress they are feeling and gives them a few choices about how they can respond when feeling upset. It seems to help them feel empowered.
#14	It immediately allows them to “reset” but also builds their confidence over time for being in control of how they’re feeling.
#15	It allows them a chance to reset and make choices that can help them become successful again.
#16	They can take a few minutes to think or just draw for fun while in the calming corner. Since anyone can use it, no one student is singled out by sitting there.
#17	It works about half of the time. I would like a plan that is more intentional.
#18	It helps to immediately de-escalate behaviors and over time helps to teach self-regulation.

## VITA

# Carmen Y. Cleaveland

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**OBJECTIVE:** To work with students who have special learning needs and be an encouraging influence in their life; helping them grow in skill and confidence, toward their highest potential while developing a positive perspective for their next stage of life. My State of Indiana Professional Educator's License number is 1532968.

### EDUCATION:

Master of Science in Education  
Major: Special Education  
Purdue University, Fort Wayne  
Graduated: May 2020

Certificate in Autism Education  
Focus: Autism Education  
Liberty University  
Graduated: December 2016

Bachelor of Science  
Cincinnati Christian University  
Major: Elementary Education  
Major: Bible  
Graduated: May 1988

### EXPERIENCE:

Resource Teacher  
Central Lutheran School  
New Haven, IN  
August 2019 to Present

Resource Teacher  
Suburban Bethlehem Lutheran  
School  
Fort Wayne, IN  
January 2016 to June 2019

Resource Teacher  
Lutheran South Unity School  
Fort Wayne, IN  
August 2013 to June 2016

## SKILLS:

- \* Committed team member
- \* Positive outlook and mindset
- \* Excellent time manager
- \* Passionate about SE Learning
- \* Responsible and dependable
- \* Goal-driven
- \* Detail-oriented
- \* Strong self-initiative
- \* Adherent to deadlines
- \* Committed to personal growth