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Adolescents with sensory processing disorder in middle school settings : a guidebook for learning support coordinators

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Adolescents with Sensory Processing Disorder in Middle School Settings: A Guidebook
for Learning Support Coordinators

By

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Abstract

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Adolescents with Sensory Processing Disorder in Middle School Settings: A Guidebook for Learning Support Coordinators

This integrative master's project explores how sensory processing disorder (SPD) impacts adolescents' lives and their success in school and provides special educators with resources to support students with SPD. Students who have sensory processing challenges can experience pain and discomfort on a daily basis, which can make students feel irritated and feel a lack control over their bodies. Through performing simple exercises and interventions throughout the school day, students can begin to regulate their senses and gain control of their bodies. The rationale introduces my background and philosophy as an educator, gives an overview of Autism Spectrum Disorder (ASD), Attention Deficit Hyperactive Disorder (ADHD), and Sensory Processing Disorder (SPD), and describes characteristics of adolescents with those disabilities. The guidebook includes information about sensory systems, interventions, strategies to teach self-advocacy, and an overview of how to organize a student-based support team in a middle school setting. This guidebook will provide LSC's with resources to support teachers in accommodating for the unique needs of a student with SPD within a traditional middle school setting.

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Introduction

At the conclusion of my master's degree I present a culminating body of work in the field of secondary special education. Over the course of a yearlong independent study, I have created a guidebook for middle school learning support coordinators to use collaboratively with students who have sensory processing challenges that affect their schooling experience. My interest in sensory processing began on my semester abroad in Sweden when I visited a facility called a Snoezelen. A Snoezelen is a multi-sensory environment or room that is used therapeutically for people with sensory challenges due to a range of disabilities. At this Snoezelen, my eyes were opened to the range of treatments used to regulate people's senses and ease discomfort that participants experience on a daily basis. Rooms with vibrating ball pits, beds with weighted cushions, corners bathed in soft and colorful lights created an environment both stimulating and calming to individuals with sensory needs. A few years later in my Developmental Variations class at Bank Street, I learned more about the biological factors that cause sensory processing challenges and strategies and tools that teachers and occupational therapists can use at school to help individuals. Shortly following that, I began teaching at a middle school where I taught several students who showed visible discomfort and a lack of control over their own sensory systems. A lack of structure and support at the school caused the students to struggle academically, socially, and emotionally on a day-to-day basis. These experiences have led me to my passion for creating a guidebook that will support students with sensory challenges at such a pivotal and challenging time in their lives.

In my experience and research, a significant need in the field is resources for special education teachers who work with students who have sensory processing challenges, or learning specialists who support teachers who work with students with sensory processing challenges. The placement of students with IEPs in a general education class occurs often in middle school because many students only need a more restrictive environment for some subjects throughout the day. Additionally, moving from class to class with different teachers and classroom environments can be challenging for students who have disabilities. For example, students who have a disability that requires them to have support from a special education teacher in some classes throughout the day might have co-taught classes in subjects like ELA and math. However, if their disability isn't severe enough to require a special education teacher at every point throughout the day, they might be in a general education science, social studies class, Spanish, or gym class. In a traditional public middle school, there are less likely to be ICT programs set up in these subject areas, and thus general education teachers often do not have adequate training in learning about and supporting their students' disabilities, specifically a lesser known disorder like Sensory Processing Disorder. Thus, this guidebook will serve as a tool for teachers to work with and teach students how to be more aware of their sensory challenges, and how to advocate for what they need in order to be as successful as possible in all classes. Additionally, learning to be self-reflective and an advocate for oneself is an important life skill that will help individuals through adulthood.

Rationale

My Identity as an Educator

I stood on the chair to pull up the window shades, wiped the white board with a fresh spray of EXPO cleaner, and took out a fresh attendance sheet. I flipped through my binders to make sure they were ready for the day with their correct worksheets, shape cut outs, and sentence strips. Today was the day I was teaching editing. I neatly crafted each word of a poorly written passage on my white board for the class to see when they walked in. I began to take attendance in my stern but welcoming voice, “Panina?” “Gear Bear?” “Gunda?” As my imagination began to soar, the stuffed animals simply stared back at me. This is how I started my daily after school lessons to my class of three, eager students. My love of teaching began in the sunny guest room of my childhood house, with old materials taken from my grandmother’s school, and has only grown since I was a miniature Ms. Borden at the young age of 6. I am now in my fourth year of teaching, and have been developing my identity as an educator since my early years in my guest bedroom.

School Setting and Its Impact

I graduated from Skidmore College with a Bachelors of Science in Childhood Education Grades 1-6. At that time, I was more interested in pursuing literacy in my career and graduate studies rather than special education, but my first classroom setting as a teacher shifted my mindset. My interest in studying special education began when I was a co-teacher in a self-contained class of 12 students who all had special needs.

Throughout this year these students fueled my yearning for a greater understanding of

special needs and how to support students with disabilities in both self-contained and inclusive settings. After that year, the 12-1-1 program moved to a different school in the same charter network, and so I returned as a first grade teacher in an Integrated Co-Teaching (ICT) classroom. Throughout these two years I came to realize key understandings that were essential to my students with disabilities being successful in the inclusive classroom. Students were most successful when they had consistency in expectations, opportunities to communicate their needs, and classroom environments that supported physical and sensory systems. These needs became even more apparent to me when I started my next job as a Special Education Teaching Support Services (SETSS) teacher at a middle school. I currently work in grades five through eight at Academy Charter School¹ (ACS), a community based charter school for Pre K - 8th grade.

I was motivated to pursue this project based on classroom experiences with two students (see guidebook for descriptions of these students and their sensory processing challenges in more detail). From my own experiences as a student, as well as my successes and failures as a teacher, I feel that my teaching philosophy combines the social constructivist and psychodynamic approaches. As I get to know my students, I can better create an environment where they can construct their own meaning and take multiple perspectives about the content that is being presented. My conceptualization of teaching is rooted in the psychodynamic theory and understanding that because each student learns differently and will thrive in different learning situations, it is necessary to deeply know each student. The guidebook will begin with surveys that will help the

¹ All names of people and organizations have been changed to ensure anonymity.

teachers to get to know the student's emotional, social, and physical strengths and challenges. Each year I focus on the "building of trustful relationships with young persons in order to foster the development of self-esteem, personal insight, self-control, and social skills" (Danforth & Boyle, 2007, p. 10). This sense of trust in the student-teacher relationship will make each student feel like an integral part of our classroom community. My guidebook will act as a vehicle for teachers and students to build this trusting relationship through purposeful exercises aimed at increasing effective communication.

In terms of classroom community, each student should also work to support his/her peers in their "attainment of personal goals, not for proving superiority to one's opponent" (Brendtro & Brokenleg, 2007, p. 95). This is imperative in a classroom that has students with disabilities because each student will be working to attain different social, emotional, and academic goals depending on their current levels of performance. Students need to be comfortable with the idea that each student needs different types of support to achieve their own goals. Sapon-Shervin (2010) states that, "goals can also be shared [with others] and students taught specific repertoires for supporting and helping classmates' to reach their goals and to celebrate successes and respectfully honor challenges" (p. 120). In a classroom with students who have SPD this may look like one student completing their work while sitting on an "inflatable disk that has raised bumps. This may curb his urge to wiggle...to provide increased tactile pressure for the student" (Moyes, 2010, p. 78). This particular sensory support can help students who have trouble staying in their seat throughout the day, and create an environment that is more

supportive to that individual's focus and sensory needs. I facilitate this differentiated goal setting through each student setting their own goals that they wish to attain, writing them down on goal cards and having students share them with their peers. I provide opportunities throughout the year for students to reflect on their own progress, and for peers to provide ideas and support to their partners to help them reach the goal. Teachers who use this guidebook will help students create and share goals with each other in order to help them become more aware of their sensory needs, as well as creating awareness around their progress.

Additionally, in a classroom based heavily on psychodynamic theories it is important that students have empathy for each other and know that they "can rely on one another to be considerate of their needs, wants, desires, and fears" (Larrivee, 2000, p. 3). Some ways that students show empathy in my classroom are by asking their peers questions about how they are feeling, and not interrupting when someone is sharing their thoughts. In the guidebook there will be recommendations for teachers on how to instill the values of empathy and acceptance in classrooms. To develop that empathy, students need to feel safe in their classroom community to be emotionally honest with each other, and the teacher needs to model and demonstrate emotional honesty with the students. This can mean stopping class if an issue comes up and "dealing with emotions as they emerge, keeping resentment from settling in to erode relationships with students" (Larrivee, p. 3). I will provide sentence stems, accountable talk phrases, and vocabulary examples of how to guide students to show empathy in conversations with peers.

My teaching strategies and vision of classroom community is grounded in psychodynamic theory, and the models designed by Shapiro and Nager (1999). Shapiro and Nager's (1999) theory of Developmental-Interaction focuses its practices on, "human development, interaction with the world of people and materials, building democratic community, and humanist values" (p. 5). I believe that curriculum and classroom expectations need to be designed to meet students where they are developmentally. These expectations will vary within a classroom as well based on each student's social and emotional development. For example, for students who struggle to bounce back from upsetting, frustrating, or maddening situations that might occur in the classroom, I have established "break protocol". Students are able to take individual time to calm down and reflect on the incident that caused these overwhelming feelings, before they are expected to rejoin the classroom community or find a solution to the problem. This break protocol will be outlined in the guidebook as a tool that teachers can use when students are exhibiting sensory dysregulation and may need to take some time to utilize independent strategies to regulate themselves. Additionally, Shapiro and Nager (1999) state that teachers must "respond to the individuality of each child and to the dynamic interactions among child, adults, and the material environment" (p. 19). Responding to each child's individual needs in conjunction with how they interact in their environment is essential to supporting students in an ICT classroom. Based on my constructivist philosophy, if a student has a challenging situation that they would like to problem solve, the student and myself have a reflective conversation about the situation and try to work as a team to determine where the behavior stems from and how I can support them in finding a

solution. It is important that the student and myself work as a team so that we maintain our trusting relationship. When a student sees that I want to help them to be a part of our classroom community rather than use my power to ostracize or punish them, they are more likely to reflect thoughtfully on how to change their behavior. Through my guidebook, students will feel like they have more control over their body and the choices they make in the classroom, and thus feel more successful on a daily basis within my school's behavior management system.

Behavior Management and Philosophy at ACS

ACS is a charter school for grades Pre-K - Eighth grade located in a neighborhood of Brooklyn that is on the water. It is a community based school, and the majority of our students come from the public housing units directly across from the school. The students at ACS are primarily African American and Latino; a minority are white. The staff members at the school are 60% white or Asian and 40% African American. As a staff, we continuously have discussions around race and class systems, particularly around the ideas of internal and external oppression that are dominant in marginalized communities like the one that I teach in. Many of us are able to discuss the positions of privilege that we are in due to race, economic status, or gender, and consistently make an effort to be aware of how our perspective must be seen through that lens. The drastic difference between the privilege that many staff members have experienced and the experiences that our students have can become problematic when we impose strict management systems that are not accompanied by social emotional learning initiatives. Often times we forget to address the traumatic experiences that many of our students have gone through, and do

not support them in being successful in a rigid environment. According to the mission statement, ACS provides its students with a rigorous academic program and a community built on the school's core values of Perseverance, Achievement, Vibrance and Excellent Character (ACS Mission Statement, n.d.). Most of our students have been at ACS since Kindergarten, although each year some new students are accepted through the lottery to fulfill our school's charter. There is no character education program that is currently in place for our middle school, but students can receive merits based on exemplifying the school's core values.

There is a strict behavior management system that is explicitly taught during staff training involving a system of merits, demerits and punishments. The scholars earn scholar dollars for good behavior and get money taken away for bad behavior that does not follow the expectations. Students are then allowed to spend their scholar dollars at the school store once a week. Administrators at my school believe in Doug Lemov's (2010) idea that, "discipline is teaching--teaching students the right and successful way to do things" (p. 146), but we have a very specific and narrow idea of what is the right way to do things. General expectations that are followed beginning in Kindergarten at ACS are that the students need to be sitting with their bodies still, hands on top of the desk, knees under the desk, and eyes tracking the speaker. Students receive merits (\$+3) for positive behaviors like assisting a friend or teacher, persevering through a challenging task, showing vibrance in a class discussion, or taking a risk. Students receive demerits (\$-2) for negative behaviors like calling out, being unprepared for class, uniform infractions, making noises, and not following directions. This approach follows aspects

of the behaviorist model of teaching because it focuses “with behavior rather than the mind, it holds that behavior should be explained without directly referring to mental events or processes” (Moore, 2011, p. 460). One benefit of this system in a school setting is that students know the behavior expectations in each classroom that they enter throughout the school, regardless of who the teacher is. The expectations are consistent as are the rewards and punishments, and so arguably the students should not have any issues of clarity around what the target behaviors are. However, a “one size fits all” approach to behavior management has significant drawbacks for students who have developmental conditions that impede their ability to achieve this constant expectation. Additionally, it can lead to “constant devaluing and ranking and constantly looking at how we compare to others keeps any of us from feeling really pleased or accepting of ourselves or of others” (Sapon-Shevin, 2010, p. 12). Students who have sensory challenges are more likely to exhibit many of these behaviors that are deemed as “negative behaviors” by our school, and thus they receive a disproportionate amount of negative attention from teachers, for things that they may not be able to control. The school wide behavior system is naturally undifferentiated, which does not allow for students who have difficulty controlling their gross motor movements at all times to be supported. When giving any behavioral expectation at my school, teachers are taught to look for this concept of 100 percent of your students following your expectation at all times. If less than 100 percent of your students are following your expectation, “your authority is subject to interpretation, situation, and motivation” (Lemov, 2010, p. 167). Often times, a rigid behavior system like this only addresses a conflict once it has already

occurred, and fails to address the antecedent to the behavior. This often means that the root cause of the behavior is never examined or analyzed. For example, Jonah, who struggles with regulating his gross motor movements, is getting in trouble every day at 1:45 pm for not being able to sit in his seat in ELA class. If the teacher continues to give Jonah deductions for his fidgety and distracting behavior, the behavior will continue and possibly even escalate to more off task behavior, leading to being kicked out of class. If the teacher took the approach of examining all factors that could be causing the problem behavior, he/she may be more effective in problem solving to shape the behavior. In doing so, the teacher should take the time to examine physical factors like how Jonah's body feels at that time of day, emotional factors like how he may feel towards the subject that he is in, or environmental factors like the time of day. Then, a solution(s) could be brainstormed based on the antecedent behavior.

We were led in a workshop about how to deliver consequences with an even yet firm tone, and practiced delivering auto consequences, or detentions, to students who may explode or be disrespectful in response. Students receive detention for any sort of behavior that is repeatedly disruptive, or disrespectful. This sort of arbitrary consequence contradicts Charney's (2002) theory of logical consequences for behaviors, which says that we should, "help children see the connection between what they did and the damage that happened, offer them a chance to repair the damage as best they can, and support them in learning says they might behave differently in the future" (p. 164). While some of the students are able to take these consequences (demerits and detentions) and use them to change behavior, for the students who have sensory issues a lot of times the

behavior that they are showing is a reaction to a discomfort that they are experiencing. This leads to the behavior continuing and teachers getting more upset at the student not complying, as well as leading teachers to “focus most of our attention on what children cannot do...this keeps us from seeing the whole child and narrows our lens of appreciation” (Sapon-Shevin, 2010, p. 12). Teachers become too focused on the negative behaviors that are occurring in their classrooms instead of focusing on the positive. When students receive more serious consequences, there is an emphasis put on having restorative conversations with those students whenever possible so that it didn’t feel like a punishment, but rather the teacher trying to help the student learn. If students who have sensory challenges are made more self-aware of where their discomfort, pain, or disruptive behaviors are coming from, it is possible that they can communicate this to the teachers in these restorative conversations. Sapon-Shevin (2010) states that all students and teachers need to be able to “specify the kinds of help they need and want and when they want it” (p. 118). Then, the teacher can work with the student to problem solve around how to help the student moving forward rather than having the consequences escalate and the behaviors worsen.

I currently co-teach four sections of ICT ELA in all grades, and teach two SETSS reading pull out groups in my intervention room. The goal of our ICT classrooms is to be “welcoming of all students, acknowledging the many differences students bring to the classroom (not just characteristics labeled as disabilities), and accommodating all those differences in a shared community” (Sapon-Shevin, 2010, p. 90). Even though we offer “pull out” (service is provided outside the classroom) SETSS groups, the services are

provided as much as possible as a “push-in” (service provided in the classroom) service to increase inclusion, and decrease a potential stigma around students who need more support. All students move throughout the school to as many as six different teachers in six different classrooms or spaces. In my ICT classes there are as many as 12 students who have IEP’s with a range of needs primarily falling into the diagnoses of Autism, ADHD, Learning Disability, and Speech and Language Impairment. Most of the students who have IEP’s receive ICT services in ELA and Math 5 times per week for 45 minutes each. During those ICT classes the students have the support of a general education teacher and a special education teacher who work together to acknowledge student differences with the goal of maintaining a strong sense of community (Sapon-Shevin, 2010). Many of the students’ academic, emotional, and social needs are met through a variety of differentiations, scaffolds, and accommodations. Additionally, I have had extensive coursework and experiences that have provided me with strategies and tools that help me to create a classroom environment that is supportive of the special education students’ needs in the ICT classroom. I will discuss some of these strategies and tools in this guidebook. The students then participate in four other academic blocks throughout the day where they have one general education teacher but are still in a class of 25 students.

Overview of ADHD

Before I discuss how Sensory Processing Disorder (SPD) impacts children and adolescents in school, we must first understand Attention Deficit Hyperactive Disorder (ADHD) and Autism Spectrum Disorder (ASD). Both of these disorders are often

comorbid with SPD, meaning that they are often found together in the same person, and thus are important to understand. The students that I am focusing on for this work are both diagnosed with ADHD or ASD and both have sensory processing issues. According to The Diagnostic and Statistical Manual of Mental Disorders (DSM-V) (5th ed.; DSM-5; American Psychiatric Association, 2013), the official definition of Attention Deficit Hyperactive Disorder (ADHD) is, “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (p. 61). The DSM-V goes on to state that the three presentations of ADHD are, hyperactive-impulsive, inattentive, or a combination of symptoms from either of those categories, in a mild, moderate, or severe scale. ADHD is diagnosed in “approximately twice as many boys as girls...and in 75%-80% (children with ADHD) a second (or even third) psychiatric disorder develops at some point in their lives” (Mahone, 2012). ADHD can be found in children, adolescents, and in the mid-90’s it became more widely recognized as a condition impacting adults.

The symptoms that I discuss below are the most prominent behaviors that can impact an individual’s experience in their day-to-day life. I will specifically focus on the symptoms that affect a student's success in the school setting as it relates to SPD. The DSM-V defines hyperactivity symptoms in children as “excessive motor activity”, with specific behavioral examples like “often fidgets with or taps hands or feet or squirms in seat...often leaves seat in situations when remaining seated is expected...often talks excessively...often blurts out an answer before a question has been completed...often has difficulty waiting his or her turn” (American Psychiatric Association, 2013, p. 60).

Impulsivity is when children have “hasty actions that occur in the moment without forethought and that have high potential for harm to the individual” (American Psychiatric Association, 2013, p. 61). It is characterized by “social intrusiveness (e.g., interrupting others excessively) and/or as making important decisions without consideration of long-term consequences (e.g., taking a job without adequate information)” (American Psychiatric Association, 2013, p. 61). Hyperactivity and impulsivity are very similar because of their symptoms and are often seen together in individuals. In school, students who are impulsive and hyperactive are often said by teachers to, “think after they act,” are often labeled as “the aggressor,” and have a “higher incidence of accident proneness” (Flick, 1998, p. 3). Additionally, they often “start working on projects before learning all of the directions, rush through their work, and make many careless errors in the process” (Flick, 1998, p. 3). All of these descriptors have negative connotations, which drastically impacts the teacher’s view of the student.

Inattention is characterized by an “inability to stay on task, seeming not to listen, and losing materials, at levels that are inconsistent with age or developmental level” (American Psychiatric Association, 2013, p. 32). Jonah often begins to write a paragraph and then after writing one line he has begun to doodle on the side of his page, or has started to make a sculpture out of materials on his desk, needing many teacher redirects to get him to finish the written paragraph. In school, a student with inattentive ADHD “often fails to give close attention to details or make careless mistakes in schoolwork...has difficulty sustaining attention in tasks...does not follow through on instructions and fails to finish schoolwork...and loses things necessary for tasks”

(Bressert, S., n.d.). While many typically developing students experience these behaviors once in awhile throughout middle school, a student who experiences many of these on a daily basis is likely going to struggle immensely with academics in school. Additional characteristics that can be found in children diagnosed with ADHD are “disorganization, sensation seeking behavior, daydreaming, poor coordination, memory problems, and persistent obsessive thinking” (Flick, 1998, p. 2). Some teachers at my school who do not fully understand the disorder will see these symptoms and think that the student is making a choice to be off task or disruptive and that they are not trying hard enough to stay on task. When teachers fail to recognize that a student’s disability is impacting his/her choices, it can be challenging to create solutions that work.

Often times ADHD is not recognized in children until they enter pre-school or kindergarten where social structures and behavioral demands are put in place, and children are placed in situations that require more self-control and extended focus. For example, a parent of a toddler might not notice that their child is hyperactive because their environment allows them the opportunity to run around and play all day without having to sit in one place and complete a task. In order to be diagnosed with ADHD, a child must exhibit at least six symptoms from either (or both) the inattention group of criteria and the hyperactivity/impulsivity group of criteria, while an adolescent or adult (over 17 years) only has to have five (American Psychiatric Association, 2013). The exact causes of ADHD are still unknown, although there has been a significant amount of research done in the past twenty-five years that suggests a strong biological base for ADD/ADHD rooted in genetics. Studies done by Morrison and Stewart (1974) suggest,

“ADHD is more common in children who have parents with ADHD or other psychiatric diagnosis...as well as more common in siblings and twins rather than half siblings or adopted siblings.” These findings suggest family-genetic influences in the ADD/ADHD pattern.

Overview of Autism Spectrum Disorder

The DSM-V’s revised definition of ASD states that, “persistent deficits in social communication and social interaction across multiple contexts,” which involves “deficits in social reciprocity, nonverbal communicative behaviors used for social interaction, and skills in developing, maintaining, and understanding relationships” (American Psychiatric Association, 2013, p. 31). Additionally, the individual must exhibit “restricted, repetitive patterns of behavior, interests, or activities” as characterized by two or more of the following; “stereotyped or repetitive motor movements, use of objects or speech, insistence on sameness, highly restricted, fixated interests, or hyper- or hyporeactivity to sensory input” (American Psychiatric Association, 2013, p. 50). Like most disorders, there is a range of severity that can exist in ASD, spanning from some support needed, to substantial support needed. Most of the students who are in ICT classrooms fall on the side of some support needed, while students with more severe manifestations are typically in more restrictive environments like 12-1-1 classrooms or programs that specialize in ASD. Sicile-Kira (2006) offers a comprehensible definition of ASD by breaking it into three main areas. A child must display frequent and severe “difficulties with social relationships, difficulties in communication, and obsessive or inappropriate attachment to objects or rituals” (Sicile-Kira, 2006, p. 9). When I refer to ASD

throughout my research, I will be using the most recent definition as outlined by the American Psychiatric Association in the DSM-V. Most individuals with ASD are diagnosed at an early age as parents begin to see that their child is not meeting typical developmental milestones in comparison to their same aged peers, or in comparison to sibling's development. However, the age of diagnosis can depend on the severity of the symptoms that the child is exhibiting, for example non-verbal children or children who do not respond or over react to external stimuli are likely to be noticed earlier. The symptoms and behaviors of children with ASD are talked about on a scale of high functioning to low functioning, which is dependent on a child's IQ and their verbal and expressive abilities. The student that I have chosen to focus on is in the high-functioning range due to him having an IQ over 80, and an ability to express himself through speaking and writing. He also has moderate-strong executive functioning skills that allow him to be independent throughout most of the day. This student stood out to me as being a good focus for this project because of his ability to recognize and express his emotional, social, and physical needs, which is essential for him to learn how to communicate about his sensory needs. Therefore, this guidebook's intended population is high-functioning adolescents with ASD.

In order to be diagnosed with ASD, the DSM-V requires that an individual must have, "symptoms present in the early developmental period...symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning...and these disturbances are not better explained by intellectual disability or global developmental delay" (American Psychiatric Association, 2013, pp. 50-51).

Overview of Sensory Processing and the Connection to ADHD and ASD

Sensory Processing Disorder (SPD), also known as Sensory Integration Dysfunction (SI Dysfunction) is the “inability to use information received through the senses in order to function smoothly in daily life” (Kranowitz, 2005, p. 9). It is important to understand that SPD is not one specific disorder, but is usually used to describe neurological variances that are impacting an individual’s sensory processing system. The American Academy of Pediatrics (2012) argues that SPD is not a stand-alone disorder because there is not enough research to support that, “children who present with sensory-based problems have an actual ‘disorder’ of the sensory pathways of the brain or whether these deficits are characteristics associated with other developmental and behavioral disorders” like ADHD and ASD. Additionally, it is still debatable as to whether the treatment that occupational therapists offer can affect a child’s functioning over time. Thus, SPD is not currently included as a diagnosis in the DSM-V, but “what is accepted in the wider clinical community is that many children do have unusual and sometimes problematic sensory responses, including most of those kids who are eventually diagnosed with autism” (Arky, 2013, para. 8). Since SPD is often comorbid with other diagnosis, it can be challenging to isolate the SPD symptoms vs. symptoms of the other diagnosis. For example, it is hard to know if Jonah’s struggle to stay still in his seat is a function of sensory challenges, or of his ADHD, or a combination of the two. When considering interventions that have been proven to be successful with SPD, there is a disagreement about whether the interventions that occupational therapists provide benefit

a child significantly, and whether “it’s possible to generalize enough from the behavior of individual kids to consider it a coherent disorder” (Arky, 2013, para. 11). However, it is widely recognized that occupational therapists help children to become calmer and better regulated, which is why OT remains an important mandated service that students can receive through their IEP in school. Dr. Matty Cruger, a clinical psychologist states that, “the challenge lies in whether we have acquired sufficient evidence to prove that these behaviors are consistently and meaningfully different from typical kids, and if there are specific treatments for this problem” (Arky, 2013, para. 14).

The DSM-V specifies sensory problems as a symptom of ASD through the criteria, “hyper- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement)” (American Psychiatric Association, 2013, p. 50). However, there is a movement in the field towards recognizing SPD as a stand-alone disorder because of research that shows distinct differences in the brains of individuals with SPD and those with ASD. Research done at the University of California San Francisco shows that, “children affected with SPD have quantifiable differences in brain structure, confirming a biological basis for the disorder that sets it apart from other neurodevelopmental disorders such as ADHD and autism” (Miller, 2014, para. 2). Upon observing the brains of kids with SPD, they found that their brains showed less connectivity in the “basic perception and integration of tracts of the brain that serve as connections for the auditory, visual and somatosensory (tactile) systems involved in

sensory processing” (Miller, 2014, para. 1). This means that the areas of their brain associated with sensory processing are not able to communicate as clearly with each other as those with typically developed brains. Looking at brain connectivity may allow us to measure the success of sensory processing interventions.

Another study done by the SPD Foundation in 2014 found that students who participated in therapy sessions based on the STAR treatment model, 3-5 times per week improved in “levels of anxiety, attention, hyperactivity and aggression” (Harolds & Walker, 2014). This study is a landmark study because it shows that many of the negative symptoms of SPD that we see in schools can be alleviated through sensory-based therapy. Some of the therapies that you might see being used in these sessions are based off of the widely used intervention, Sensory Integration Therapy (SIT). SIT involves a set of activities that is implemented based upon a child’s sensory needs, and includes activities like, a “child wearing a weighted vest, being brushed or rubbed with various instruments, riding a scooter board, swinging, sitting on a bouncy ball, being squeezed between exercise pads or pillows, and other similar activities.” (Lang, et al., 2012, p. 1005). Other components that make SIT an effective intervention are, “detailed evaluations and communications through written assessment reports and intervention plans, as well as direct interchanges with parents and teachers” (Parham et al., 2011, p. 141). This heightened level of clear communication between all members of the sensory integration team (e.g., parents, teachers, psychologists, and administrators) is essential to making sure that students are being supported. We are at the forefront of a movement where SPD is starting to become recognized as something that individuals can experience

as a stand-alone disorder, which would impact interventions and the experience of “5%-16% of kids in the general population” who are affected by SPD (Miller, 2014, para. 5). First I will briefly discuss the history of SPD, and then I will describe in detail how it affects the body.

Dr. A. Jean Ayres was one of the first people to discuss the theory of Sensory Integration (SI) in the 1950’s. She worked as an occupational therapist, and began to discuss her findings with her colleagues in order to continue to develop her research. Her research is based on the idea that you have to first explain the behavior by knowing what typical vs. atypical sensory behavior looks like, plan an intervention that targets this behavior, and then predict how the behavior might change through this specific intervention (Roley, Mailloux, Miller-Kuhaneck, & Glennon, 2007). Today, occupational therapists still use a SI intervention trademarked in Ayres’ name regularly in their practice. One important outcome of Ayres’ theory is the clarification of terms related to sensory processing. Because of the theory’s significance in my guidebook, I will present the most recent definitions related to sensory processing that are used by therapists, parents, and educators today. The following definitions are by Roley et al., (2007) university faculty and physical therapists from around the country, and are consistent with Ayers’ practices.

Sensory Integration has multiple meanings, as a theory...and as a process related to multimodal processing that supports the formation and retrieval of multisensory perceptions in the central nervous system...*Sensory processing* is a generic term used to describe the way in which sensation is detected, transduced,

and transmitted through the nervous system...*Sensory-processing-deficits*, are used to describe any of the ways in which the above is flawed...*Sensory-based strategies*, refer to any strategy that is used to target the sensory system. (Roley et al., 2007, p. 3)

It is important that therapists, parents, researchers and educators all use the same terminology so that they can work together to accurately evaluate and discuss their clients. When there is a common language being used to discuss the symptoms and behaviors that therapists, parents, and teachers are seeing, everyone can move forward with using research-based interventions targeted for that specific client.

Next, it is important to understand how the sensory system works by looking at how our sensory systems develop. “For most kids, sensory integration skills develop naturally. As children learn about new sensations, they become more confident about their skills, refine their ability to respond to sensory experiences, and are thus able to accomplish more and more” (Biel & Peske, 2005, p. 14). This doesn’t always occur as naturally and smoothly in other kids due to unknown biological and neurological reasons, and it can impact children’s bodies and lives in various ways. Beginning in utero, our bodies prepare themselves for the “development of our more integrated skills, such as gross and fine motor coordination as well as language and communication” (Delaney, 2009, p. 15). When children begin to fall behind in sensory system development, they may struggle to “read” the environment around them in the way that typically developing individuals do, which might cause them to react inappropriately or in a way that makes them uncomfortable. In order to ease this discomfort, it is important to figure out which

of the sensory systems is contributing to the individual's atypical perceptions, and if it is under reactive/hyposensitive, or overactive/hypersensitive.

Our body has seven sensory systems that are all integrated and depend on each other. Tactile (touch), auditory (hearing), visual (seeing), gustatory (taste), and olfactory (smell), are the ones that are typically known by all as being part of our senses. Terms that are lesser known are vestibular (movement-balance) and proprioceptive (body position), although we can all relate to how they contribute to our bodies. The tactile sense is responsible for telling you what is in “contact with your body and gives you information related to pain, pressure, temperature, movement, size, texture, and shape” (Delaney, 2009, p. 16). Delaney goes on to explain that the touch sense is divided into two categories, the defensive system, which gives us information about “potentially harmful stimuli”, and the discriminative system, which “gives us information about the physical nature of the objects you are touching or those that are touching you.” For example, when you are holding a pair of scissors, your hands register that one end of the scissors are pointy and colder to touch, so they are probably made of metal, and thus dangerous. The auditory sense “allows us to locate, capture, and discriminate sounds...and is one of the early concerns reported by parents of children who receive a neurological diagnosis, such as Autism or SPD” (Delaney, 2009, p. 17). This is because parents are able to notice early on if children are not responding to verbal cues and questions. The visual sense allows us to “to detect contrast, edge, and movement so we can defend ourselves; and second, to guide and direct our movement so we can interact meaningfully in our environment, socialize, and learn” (Kranowitz, 2005, p. 155).

Eyesight refers specifically to your eye's physical ability to see, while vision is all encompassing of how your eyes perceive the world around you, so an individual could have poor eyesight but that doesn't mean that their visual sense is weakened. The gustatory or tasting sense, is one of our two "chemical" senses that allows us to "detect chemicals of foods, it gives you information about the things that enter your mouth" (Delaney, 2009, p. 17). Individuals can be oversensitive or under sensitive to taste, and often chose what they eat based on how it feels in their mouth or in their hands, the smell, the color of it, the temperature, or a combination of textures (Kranowitz, 2005). The olfactory (smell) sense is closely related to the taste sense, and is the other "chemical" sense. When we smell, the process that occurs begins with sensing chemicals in the air, registering them, and then classifying information about the odors we smell around us into something we are familiar or not familiar with (Delaney, 2010). For example, when walking through the hallways around 11:30 am in a school, there can be a variety of smells wafting through the hallways because lunch is typically being prepared or served at that time. People who have a developed olfactory sense would be able to register that smell as a known food, realize it is being prepared in the cafeteria, and then move on from that instantaneous thinking process. Many people with ASD are bothered by smells and odors that they experience around them day to day, and would potentially find the cafeteria lunch smell discomforting. In addition to lunchrooms, this is also a very common issue in houses with an open kitchen or walking down a street filled with restaurants in a city.

Lesser known but important senses are the vestibular sense and the proprioceptive sense. Vestibular, or what is more commonly known as movement-balance, helps you to understand “where your body is in relation to the ground” (Delaney, 2009, p. 16). The receptors for this sense are “located in the vestibule in the inner ear; it indicates where you are relative to the ground and other objects” (Delaney, 2009, p. 16). If a child has a poorly functioning vestibular system you can usually tell by looking at them because they have symptoms like, “exaggerated emotional response to antigravity movements way out of proportion with the actual possibility of falling” (Biel & Peske, 2005, p. 39). Matty shows this when he is walking down the stairs and at the last step he falls forward, appearing as if he wasn’t able to stop himself, and runs into the wall in front of him. Individuals who are considered to be “typically developing” are not even aware of this trust that your body has with gravity, but for individuals with this symptom they can feel like they are falling into empty space after one step. Some children experience movement discomfort when they move fast or spin (Biel & Peske, 2005) which can cause them to make unexpected erratic movements. Sometimes Matty will begin to walk to get in line with his peers to leave the classroom, but once reaching his line spot, he continues to walk into the wall and bounces off of it before getting to his spot. Johnny often will spin around two full circles when he needs to face me instead of turning the least amount of times.

Lastly, the proprioceptive is your body awareness system. This system tells “you where all of your body parts are relative to the others and how they are moving in relation to each other” (Delaney, 2009, p. 16). This internal body awareness is dependent on

“receptors in your joints, muscles, ligaments, and connective tissue” and can appear as a child looking uncoordinated, or more commonly described as “clumsy” by adults (Biel & Peske, 2005, p. 33). Matty will often lose his ability to hold his posture, or his ability to communicate to his muscles to sustain posture, and after a 10-minute lesson he is leaning down with his head on the table. Additionally, he often drops things that he is holding like his folder, pencil, or book, because he isn’t able to plan or communicate how much pressure he needs to place on the objects in order to keep them in his hands.

Occupational therapists consider SPD a stand-alone disorder because of its prevalence in their clients, but the DSM-V does not. Thus, educators, parents, and clinicians mostly talk about SPD as being co-morbid with other disabilities like ADHD, Learning Disabilities (LD) or ASD, since those are all recognized diagnoses in the DSM-V. Although individuals diagnosed with ADHD, LD, and ASD initially don’t seem to have a lot in common other than being fairly common disorders, one area that they experience similar problems with is processing sensations (Kranowitz, 2005). If families and clinicians can identify SPD early on in a child’s life, they can begin early to find ways to ease discomfort in the child’s life. Interventions like taking a child to a sensory gym, or giving them tools like weighted vests or brushes, can help to lessen painful experiences early on in life. Research has shown that people with SPD experience problems with cell migration as well as nervous system disturbances, which can cause a person’s body to struggle with external changes in environment like a temperature change, lighting change, or volume change (Biel & Peske, 2005). Despite a lack of research on the causes of SPD, there is more concrete knowledge about who is at higher

risk for having sensory problems, which can help us in diagnosing individuals and beginning interventions as soon as possible. Similarly, to ADHD and Autism, genetics plays a large role in SPD and it often runs in families. It is common that more than one child per family may experience symptoms of SPD at varying levels. For example, Jonah has two other siblings at our school in the lower grades, and both of them exhibit sensory challenges as well as ADHD like symptoms, although they are both undiagnosed.

Premature babies are at a greater risk of SPD due to the “disorganized nervous system [that] isn’t ready to handle all the sensory messages bombarding her” (Biel & Peske, 2005, p. 69). Additionally, babies who had a traumatic birth and those who are adopted (specifically overseas adoptions) are at increased risk for sensory problems (Federici, 1997). The reasons that these babies are more at risk are still unclear. Lastly, children who have heavy metal poisoning from mercury or lead are at a greater risk of having sensory issues as well as other disabilities (Biel & Peske, 2005, p. 72).

Adolescents with Autism Spectrum Disorder and ADHD

As an educator it is important to be cognizant of what stage your students are at developmentally, and work to tailor your routines, systems, and expectations based on their developmental stage. In middle school, the students are going through one of the most challenging stages, adolescence, because of hormones changes that can feel unpredictable and unfamiliar to an individual. Adolescents who also have a disability, like ADHD or ASD, are going to experience an even greater amount of change within their bodies because the symptoms of their disabilities will begin to evolve with the changes in hormones. ASD and ADHD are two disabilities where a significant amount

of change happens in the adolescent stage due to increased social demands, changing hormones and widened emotional capacities. At the same time, adolescents often crave a sense of independence and control over their choices, which can be a big step for students with disabilities.

ADHD is considered unique in that the symptoms that an individual exhibits do change significantly over time. This guidebook will cover the developmental characteristics of individuals with ADHD focusing on the school-age child and adolescent, because a middle schooler typically falls at the end of the school-age child and the beginning of the adolescent child. The school-age child with ADHD will typically experience a change in symptoms that can feel like a positive step forward. “Initial symptoms of hyperactivity, distractibility, impulsivity, and aggression tend to decrease in severity over time but remain present and increased in comparison to controls” (Loe, Feldman, 2007, p. 645), therefore, as a student goes through the middle school years they may appear to be less overtly hyperactive, which can contribute to adolescents with ADHD being capable of sitting through longer and more demanding classes than they could in elementary school. Other positive behaviors that I have observed of adolescents with ADHD at my school and in my practice are that they are often outgoing and confident at an age when many adolescents start to become self-conscious. For example, Jonah is not embarrassed or afraid to get up in front of the class and act out a part from a narrative text, whereas other students in the class do not volunteer to participate in that type of activity. Adolescents with ADHD can often times express themselves verbally to peers and adults, which is a strength that will be

instrumental in the success of an individual benefiting from this guidebook. In order for students who have SPD to truly make changes throughout their day in their sensory experiences, they will need to be vocal and active in asking teachers for things that they need. For example, if Johnny is coming up from recess and feels over stimulated, instead of running around the room, he should proactively ask the teacher if he can go and sit in the bean bag with headphones on his ears to take time to re-balance himself.

Adolescents with ADHD can typically sustain focus on a technology device such as a laptop for a longer period of time than they would without the device (Flick, 1998). With the increased use of technology in the classroom and the availability of laptops and iPad in schools, educators should make efforts to utilize technology in lessons with students who have ADHD. For example, Jonah works on a laptop during science class playing an interactive educational game instead of reading from the textbook. He is able to sustain his focus on the task at hand for almost the entire 45-minute period without needing any redirects, whereas if he didn't have the laptop he would typically end up getting put in a time out area within 10 minutes of class starting due to disruptive behavior. Lastly, adolescents with ADHD are usually able to remain active at the end of the school day when many students are tired and become sluggish in class (Flick, 1998). In this guidebook, I intend to play into these strengths of an adolescent with ADHD so that they feel success quickly, and consistently at school. Even though there is typically progress made by the time children with ADHD reach middle school in terms of hyperactivity due to hormonal changes, new challenges are likely to arise.

Adolescents with ADHD typically have challenges with rules that apply to behavior, and struggles with completing classwork assignments and homework without putting up a fight (Flick, 1998). The parents of my students with ADHD often report that sitting down to do homework at night is a daily fight and that it often causes an immense amount of stress in the family. Many middle schools chose to focus on classwork completion and quality because it directly impacts how children do academically and it can help predict student retention (Kent et al., 2010). Jonah requires daily check ins with a teacher in the afternoon before he goes home each day to make sure he has all of his assignments, organize them in a way that he will find them at home, and then set time limits for how long he should spend on each one. Even with those steps taken daily, he struggles greatly with homework completion and often does not have anything to hand in. This guidebook would provide Jonah with strategies to help him focus during times where his body feels antsy, like chunking the homework into smaller bits, getting up and doing stretches in between each problem, and setting a reasonable end goal.

Additionally, adolescents with ADHD often “experience either tolerance or outright rejection from others as social problems tend to increase” (Flick, 1998, p. 33). A study by Barkley (1990) suggests that “twenty-five percent or more may have problems with fighting with other children”, and many develop symptoms of conduct disorder and antisocial behavior. This can lead to weak relationships with peers at school, and the adolescent feeling isolated or lonely. The National Comorbidity Survey Replication (2016) found that “the most common comorbidities (with ADHD) were anxiety disorders, mood disorders, impulse disorders, and substance use disorders” (Brown, p. 26). Brown

states that problems that many adolescents face like academic challenges, depression, antisocial behavior, and risk-taking behavior are amplified in students with ADHD, specifically if they have one of the aforementioned comorbid disorders. This is a scary statistic, and as an educator of students who have ADHD I feel it is our duty to take steps to provide continued support to adolescents who have ADHD.

Jonah is a bright child who is cognitively able to meet the 5th grade standards in reading and math, however he is currently failing both classes due to his challenges around starting and ending work independently, keeping track of his assignments, and low self-confidence when it comes to academics. Flick (1998) states that, “teens with ADD/ADHD are certainly more subject to peer pressures regarding the use of alcohol or other addictive substances (as many as 30% experimenting with or abusing alcohol and marijuana” (p. 33). This is because they are more likely to take risks, and are often searching for ways to feel accepted by their peers. I do not yet see this behavior in a middle school setting, although I imagine it occurs more frequently in high school. Additionally, adolescents with ADHD “find it very painful to recognize that they are in need of help to deal with demands of school and work” (Brown, 2016, p. 27) and many children begin to have a history of failures in academic performance (Flick, 1998, p. 33). This could be due to the individual seeing his/her peers not requiring extra help with aspects of school like organization and completion of assignments, and thus doesn’t want to appear different from them. These aforementioned symptoms can cause an adolescent with ADHD to experience a significant number of challenges in school that can lead to them feeling isolated socially, and potentially fall behind in academics. Adolescents with

ASD go through similar changes as those with ADHD, but their changes are more focused on physiological differences in their bodies rather than social or emotional.

Adolescents who are diagnosed with ASD can experience similar symptoms as they experienced when they were younger. Many of the symptoms become worse because of the changing environments, expectations of the individual, as well as internal changes like their own body. In this section I will address the most common changes that an adolescent with ASD may experience both at home and at school. Many of the changes that I will discuss are also common of typically developing peers, and may present as more of a challenge in individuals with ASD. The first challenge is the adolescent's overall health. All adolescents are expected to make their own choices regarding what they eat and when, and most want to make those choices for themselves as they feel more independent. However, because some individuals with ASD have "compromised immune systems, digestive challenges, and food allergies" (Sicile-Kira, 2006, p. 14), it is important to still monitor what the teen is eating so that they get the nutrients that they need. This is challenging for Matty at school because he will choose not to eat lunch if there is a food that he thinks smells bad or looks bad to eat, and so he will go the whole afternoon with no food to fuel his energy. As teachers, we need to communicate with Matty around this sense and how we can support him in eating a healthy meal each day for lunchtime to keep his body functioning properly. Another main health concern is that "one third of children with autism develop epilepsy...the secondary peak in adolescence may be unique to autism and may reflect the influence of hormones or other biological factors in the brains of individuals with autism" (Tuchman,

2003, p. 104). Parents and teachers need to be aware of this because sometimes seizures can be so small that they are not apparent on the outside of an individual. Seizures impact many aspects of an individual's day-to-day experience, as well as the way they are perceived socially in a middle school setting.

Similarly to ADHD, adolescents with ASD are more likely to become depressed or anxious. Matty began to display concerning behaviors this year in which he would repeatedly bang his head against the table or wall when he started to get upset about an academic or social situation. This was a new behavior that he had not shown before, and it was likely brought on by new academic and social pressures that he expressed he was having trouble navigating. We took these behaviors very seriously and immediately contacted his parents, the psychologist, and his doctor to make sure we were taking the proper steps to ensure his emotional health. When we worked as a team to support Matty, this behavior diminished and his self-concept of himself has become more positive. The last health issue that is prevalent in adolescents with ASD is "precocious puberty - where children enter puberty at an earlier age than their peers" (Sicile-Kira, 2006, p. 17). Individuals with ASD have "higher testosterone than family member controls of nonautistic children" which can lead to, "more hair growth...genital development, and more aggressive behavior" (Sicile-Kira, 2006, p. 18). This can make adolescents feel uncomfortable if they are aware that they are developing at a quicker rate than their peers, as well as be a potential trigger for teasing from typically developing peers. In a few instances, Matty has exhibited verbally aggressive behavior towards his peers that was out of character for his typical kind demeanor. Matty later reflected on

these aggressive situations and realized that he had acted in a way that was unpredictable to his peers, and that they could have been solved in a different way. Individuals with ASD can be taller and larger than their peers, which can make tasks like navigating through the classroom desks and other physical activities like playing with their peers appropriately at recess feel more challenging for them.

Most individuals with ASD experience some level of sensory processing issues, however at the adolescent level the sensory processing challenges can be exacerbated due to the design of most middle schools and high schools. In most middle schools and high schools, “students change classes many more times a day, and all the students are going off in different directions at the same time” (Sicile-Kira, 2006, p. 26). As previously mentioned, students in my school move to at least 6 different classrooms throughout the day, with 6 different teachers in each space. This does not include common spaces like the lunchroom, the yard at recess, the entryway to the school in the morning, or electives after school. Additionally, there are often extra activities that are not in daily schedules, but appear throughout the school year that can be overwhelming for senses like sporting events, school-wide assemblies, dances, or field trips. Additionally, many of the “classrooms have fluorescent lighting, as well as fire alarm bells and intercom announcements that are extremely loud” (Sicile-Kira, 2006, p. 27). Matty and Jonah both struggle immensely with their proprioceptive and vestibular senses during these events and often move in chaotic and unpredictable ways that show me that they are potentially experiencing discomfort. The constant switching of classrooms and over stimulating environments can be overwhelming, confusing, and chaotic to students who need to

consciously work to regulate their senses throughout the day, and struggle to adjust to new external environments. However, it is expected of the students that they are able to move throughout the classrooms and learn with different teachers without many challenges, and there are few opportunities for discussion around how to support students who may struggle with this. Concerns like this can be brought up by teachers at weekly SST meetings, however, problem solving and action to address this concern would require cooperation of all teachers the student sees, which has been a struggle at my school. Often times teachers struggle to come to a consensus on the best way to help a student in the classroom because teachers are not knowledgeable about the student's disability, and don't have concrete and tangible ways to help the student. Higher level social skills like, "social initiation skills such as starting a conversation with someone; getting along with others, including acknowledging others and following directions; and social response skills, such as reciprocity during conversations" need to be taught to adolescents with ASD in order to help them expand their peer relationships (Laugeson, Ellingsen, Sanderson, Tucci, & Bates, 2014, p. 7).

The last significant change in adolescents with ASD that I will discuss is behavior problems. It is fairly expected that some adolescents will begin to show defiant behavior in the middle school years, however individuals with ASD can struggle even more due to their challenges with expressing themselves orally. This is due to adolescents with ASD lacking strong expressive communication skills. It is the job of the educator or parent to try to understand what the child is trying to communicate based on their observable behaviors, and to try to find ways for the adolescent to express him/herself that works for

them. A few of the most common reasons for a meltdown are, “stress related to dealing with overwhelming sensory input...anxiety related to coping with everyday changes in the environment and routine...interruption from self-stimulating behavior... and the inability to communicate needs, wishes, and feelings” (Sicile-Kira, 2006, p. 31). It is essential to work as a team with the parents, teachers, student, and administrators to figure out the triggers for an individual's tantrums, in order to begin talking about a solution. The triggers differ from student to student, and can change from home to school. Once an individual has a tantrum, it can be challenging to get him/her back on track, so it is important to communicate and problem solve around how to minimize these triggers. The challenges that I mentioned can be incredibly debilitating to adolescents both in and out of school, and can lead to students feeling out of control of what is happening to their body.

Review of Existing Educational Resources

The range of materials that is available is fairly limited on the clinical research side due to the challenges that researchers have found in isolating SPD neurologically and physiologically from other diagnoses. However, this has begun to change in the last few years and now organizations like the SPD Foundation and Child Mind Institute are funding research to expand on areas of SPD that need more attention like the effectiveness of occupational therapy and sensory diets (Miller, Coll & Schoen, 2007; Harolds & Walker, 2014; Lang et. al., 2012), and neurological patterns in individuals with SPD (Owen et al., 2013; Bunhim, 2014). There is a wealth of information that is available for parents who have children with SPD, or Autism and ADHD comorbid with

sensory processing challenges. Prominent authors like Carol Kranowitz, Lindsey Biel and Nancy Peske have made comprehensive and accessible books for parents that span topics like what is sensory processing disorder (Kranowitz, 2005), how to raise a sensory child (Biel & Peske, 2005), and activities for kids with sensory integration dysfunction (Kranowitz, 2003). Additionally, there are a range of books available for educators and administrators detailing various sensory therapies (Mucklow & Hartwig, 2009), classroom setups (Moyes, 2010), and activities (Delaney, 2009; Culp, 2011) that can be used to assist sensory challenges in the school. These books are generally intended to be used by educators who have basic to moderate knowledge about special needs and maybe some knowledge about SPD specifically. However, it is important to note that these books do not include ways to diagnose and treat SPD clinically because the intended audience is not trained professionals in occupational therapy. Books written for occupational therapists and clinicians include ways to diagnose SPD, as well as treat SPD symptoms through research-based interventions like sensory diets and the use of sensory gyms and products. There are a small number of books and resources available for educators or parents to use with children who have SPD. These books are often written with a more informal and accessible tones with activities that allow children to reflect on the way their body feels, and learn activities that they can do to help alleviate some of their challenges (Mucklow, 2009). For more information, see specific resources that are described in the guidebook.

In addition to all of the resources available on SPD, there are numerous resources available on Autism and ADHD made for a wide range of audiences like parents,

educators, clinicians, and children, that talk about these disorders from birth to adulthood (Flick, 1998; Brown, 2016; Barkley, 1990; Kent et. al., 2010; Laugeson et. al., 2014).

Due to the recent change of definition of an Autism diagnosis in the DSM-V, it was especially important for me to note the date on all of the resources discussing Autism, because it helped to inform me of the definition that the author was going by. There are ranges of beliefs about interventions that are effective for individuals on the spectrum, which also could impact one's belief system around SPD.

While there are a handful of books and articles written for researchers and parents that discuss how SPD impacts adolescents, the list is not extensive. This is likely due to parents and educators thinking that *most* children typically grow out of sensory challenges that they experience in their childhood, and are able to self-regulate their senses by the time they reach adolescence. However, this is not typical of *all* adolescents, and thus there is a hole in the literature regarding adolescents who are currently experiencing sensory challenges. This is an important area to address because at this point in their lives, individuals are more capable of reflecting on how their body feels at certain moments, how they react to external and internal stimuli, and what is contributing to their feelings. At this age, students who are high functioning and can read independently or with an adult could benefit greatly from seeing their own daily challenges reflected in an engaging and informative book. This type of book is a powerful tool to use because it allows the reader to reflect in a private and independent way around an issue that can feel isolating as individuals get older. Additionally, it is important to teach and activate adolescents' self-regulation skills, as many adults will

begin to expect adolescents to regulate their own sensory intake and output. However, the skills required to self-reflect and regulate do not come naturally for many adolescents on the Autism spectrum, with ADHD, or SPD (Garland, 2014). It is important for middle school teachers to feel supported in helping students in their classes who experience sensory challenges so that they can be successful in the least restrictive environment. Learning specialists are a valuable resource to teachers and they are usually who teachers turn to when looking for support with a student who has special needs in a classroom. However, there is a lack of materials made to guide learning specialists in supporting students with SPD. Thus, learning specialists can use this guidebook to help them provide support to both special education teachers and general education teachers. This guidebook is essential to moving the literature forward and it will improve the experience of middle school aged, high-functioning students with sensory challenges.

Guidebook

Introduction

1. Purpose of book

This guidebook should serve as a resource for learning specialists and teachers who work with adolescents with Sensory Processing Disorder (SPD) in a general education or Integrated Co-Teaching (ICT) setting. In my experience and research, a significant need in the field is resources for students who have sensory processing challenges in general education and ICT settings. This guidebook is appropriate for learning support coordinators who support teachers in their school who have students with needs in their classroom. At the middle school level, some students with IEPs might be in a more restricted class (ICT or Special Education Teacher Support Services [SETSS] group) for some subjects, but then placed in a general education setting for other classes. This flexibility in classroom setting is one benefit of a middle school because students can have supports that are tailored specifically to subjects that they need extra support in. However, it can also be a challenge because a student might be strong in academics in math, and thus not be in a setting where they have more services, but they still require other interventions, like sensory or behavior interventions.

General education teachers are not expected to have extensive training or knowledge about students' disabilities, particularly a lesser known condition like Sensory Processing Disorder, however with the movement towards inclusive classrooms they are

more likely to be expected more and more to support students with a variety of needs. Learning specialists at schools are valuable resources and are usually the ones who are in charge of supporting and assisting teachers with supporting the needs of all students in classrooms in a school. SPD is a lesser known disorder with fewer materials available that focus on adolescents, thus this guidebook will provide learning specialists with information about SPD and easy to implement classroom interventions that they can use to support the classroom teachers. Additionally, it will empower the teachers to teach students how to be more aware of their sensory challenges. The students will learn how to advocate for what they need in order to be as successful as possible in all classes. These interventions could involve changing aspects of the classroom environment, teaching students sensory exercises, or making small modifications to the students' school day.

It is important to note that all of these changes and supports can be made within the framework of a traditional public school, and without the general education teachers feeling overwhelmed. Additionally, students who participate in these intervention ideas will learn to be self-reflective and advocate for themselves, which are important life skills that will continue to help them be independent through adulthood. Ultimately, we want to teach the students to “pay more, or less, attention, as needed, to the sensory world around him [them] and to find a way to maintain the appropriate arousal level for a given activity or situation” (Culp, 2011, p. 89).

2. Inspiration of question for this guidebook: Matty and Jonah²

Two of my students at my current teaching placement have Autism Spectrum Disorder (ASD) and ADHD respectively. These students are in an ICT classroom for two periods of the day (math and ELA) based on their academic strengths and challenges, but have had a more challenging time being successful behaviorally and emotionally in their general education classes (social studies and science). The teachers were concerned about Matty and Jonah and so I began to think about what could be impacting their daily success in social studies and science, since their academic abilities in those subjects were on grade level with their peers. I realized that in my ICT classroom I have systems, habits, and exercises set in place with these students that support their learning in a positive way, in addition to academic scaffolds, so that they generally do not have significant behavioral or emotional challenges in the ICT class. These supports allow them to contribute positively to the environment, rather than having physiological, emotional and behavioral challenges get in the way of their academic progress. Matty and Jonah³ became even more of a concern when I noticed that they were both starting to be in daily detention, and so we decided to get together as a student based support team to discuss their behavioral and emotional challenges at our weekly Student Support Team (SST) meetings. The specific behaviors of concern that as a team we saw as trends throughout their classes were Matty and Jonah not complying with directions, making excessive body movements, flapping and rocking, out of seat behavior, and calling out. The next step in working towards solutions for Matty and Jonah were for me to observe the students in their general education settings as well as conduct interviews with the

² Pseudonyms used to protect identity of students.

³ Pseudonyms used to protect the students' privacy.

students to get a more detailed picture of the student behaviors and the classroom environments that they experienced on a day to day basis.

After a few weeks of doing so and recording my observations in Antecedent Behavior Consequence (ABC) charts, a few things stood out to me. The students were indeed exhibiting different behavior than what they typically did in the ICT setting. I noticed that the students struggled with communicating with their teachers, and the students had developed avoidance behaviors (like the ones brought up at the SST meeting) that resulted in them not completing most of their classwork. Through my student conversations, observations, and my background knowledge of the students, I came to realize that many of the student behaviors stemmed from sensory and physiological needs that the students had. As a special education teacher, I reflected on how I work with my co-teacher to create a welcoming classroom space for all students, and specifically aim to create an environment that is predictable, routinized, comfortable, and supportive, so that the students know as much as they can what to expect and can regulate their senses more easily.

Specific ways that I have created this supportive environment with my co-teachers are by giving students who have sensory challenges either softer or more textured seat cushions to sit on, putting on specific lights depending on where the student is sitting, giving the student a squishy toy to play with, allowing a student to stand or move throughout the room when necessary, building in ample student talk time with their peers, and minimizing loud or jarring transitions from activity to activity. Other ways that I support various academic needs are through purposeful group work (mixed or homogeneous depending on the task) and tiered activities based on interest or skill. In literacy lessons I use supplemental graphic organizers and pre-annotated or adjusted texts according to reading level. These are just a few of the strategies that I incorporate on a daily basis in my ICT classrooms that provide support to all students who have varying levels of special needs. While some of these techniques do require a co-teaching model for them to be successful and not too overwhelming to manage, I wanted to think about ways that the students could still be supported with their sensory needs in the general education classrooms.

In my school, the teachers do not have power to change the management system in ICT and general education classrooms, which can lead to teachers feeling like they are not able to make accommodations for certain kids who might have behavioral challenges within the structure. For example, if a teacher is trying to be consistent with the use of the management system, they may expect that the use of consequences would help to stop a behavior. However, for students who have sensory challenges the use of consequences will not necessarily stop the behavior, because the physiological imbalance will still be present and causing the student discomfort. Therefore, after reading this guidebook I hope that teachers' thinking and attitudes change around using sensory integration techniques in their classrooms. I want teachers to see interventions as a strategy to support students so that they can be successful in the current management system.

The idea of accommodating for all needs in your classroom is daunting if you are the only teacher in the room. After reflecting on the case study of Matty and Jonah, I realized that these were students who had the potential to thrive in a least restrictive

setting if a team was able to convene to problem solve and create interventions based on the student's needs. Instead, they were starting to be labeled as problem children and beginning to develop a negative attitude towards school. This potential truth scared me and I realized that there were easy steps to take to begin to support this type of student.

3. Who can best use this book?

This book is intended to be used by learning support coordinator (LSC) who work with adolescents, or oversee teachers who work with adolescents, who have sensory processing challenges in a classroom setting. The student(s) of focus might exhibit sensory processing challenges without any other disability, or he/she may have SPD comorbid with another disability like ASD or ADHD. This book can also be used by special education teachers, but the special education teachers should work closely with the LSC so that the LSC can assist with communicating with a whole team of teachers within the school and administration. This book will be most effective if it is used by a team of the child's teachers, any related service providers, and the LSC. If the team is able to consistently collaborate with each other, the student will feel supported and more regulated in terms of his/her senses. This guidebook will be most useful for teachers who work in a school where students move from classroom to classroom throughout the day and with multiple teachers in order to promote consistency in classroom environments. Lastly, this guidebook is not intended to be used as a substitute for occupational therapy, but can be used in conjunction with any occupational therapy that a student might be receiving. Always consult and collaborate with the occupational therapists at your school before trying any of the strategies suggested in this book.

Chapter 1: What is Sensory Processing Disorder?

1. Definition

Sensory Processing Disorder (SPD), also known as Sensory Integration Dysfunction (SI Dysfunction) is the “inability to use information received through the senses in order to function smoothly in daily life” (Kranowitz, 2005, p. 9). Basically, it means that an individual's senses are not working properly to help them react to the world around them in developmentally typical ways. SPD is not seen as a stand-alone disorder, so it won't typically be the diagnosis that a child has in your classroom. Many children who have SPD will have a different diagnosis on their IEP because it is not one of the 13 categories of special education. The 13 categories of special education are specified in IDEA and they will be one of the classifications that a student receives upon qualifying for special education services. Some students have “Other Health Impairment” as their diagnosis if they have significant sensory processing challenges, but don't have a comorbid disability.

As humans, we all have sensory systems that we use to “adjust our level of arousal depending on the situation. For example, if the lights are too bright, we turn them off to lessen the brightness. These are responses to what our nervous system is telling us about specific situations” (Culp, 2011, p. 89). These sensory systems allow us to continuously take in information about what we see, feel, smell, taste, and hear about the world around us, and then make choices about how to move and act based on our perceptions. We begin to integrate the sensory systems to allow for “gross and fine

motor coordination as well as language and communication” (Delaney, 2009, p. 15). For most people, these sensory systems function almost invisibly without any awareness that they are contributing to your perception of the world around you. However, for people with SPD, the sensory systems are not functioning at their optimal capacities potentially causing discomfort and pain.

Our Sensory Systems

Our body has seven sensory systems that are all integrated and depend on each other. Tactile (touch), auditory (hearing), visual (seeing), gustatory (taste), and olfactory (smell), are the ones that are typically known by all as being part of our senses. Terms that are lesser known are vestibular (movement-balance) and proprioceptive (body position), although we can all relate to how they contribute to our bodies.

The **tactile sense** is responsible for telling you what is in “contact with your body and gives you information related to pain, pressure, temperature, movement, size, texture, and shape” (Delaney, 2009, p. 16). Delaney (2009) goes on to explain that the touch sense is divided into two categories, the defensive system which gives us information about “potentially harmful stimuli”, and the discriminative system, which “gives us information about the physical nature of the objects you are touching or those that are touching you.” For example, when you are holding a pair of scissors, your hands register that one end of the scissors are pointy and colder to touch, so they are probably made of metal, and thus dangerous. A child who has an understimulated tactile sense might enjoy rubbing his fingers over Velcro, or the surface of a bumpy ball.

The **auditory sense** “allows us to locate, capture, and discriminate sounds” (Delaney, 2009, p. 17). In school, auditory processing dysfunction can be seen as a student becoming uncomfortable and covering his/her ears when the school bell rings to signal the change of class. Children with auditory processing challenges often struggle the most in common spaces at school like the cafeteria, gym, dismissal, and recess, due to the high volume of noises that make it difficult to understand where and who the noises are coming from.

The **visual sense** allows us to “to detect contrast, edge, and movement so we can defend ourselves; and second, to guide and direct our movement so we can interact meaningfully in our environment, socialize, and learn” (Kranowitz, 2005, p.155). Eyesight refers specifically to your eye’s physical ability to see, while vision is all encompassing of how your eyes perceive the world around you, so an individual could have poor eyesight but that doesn’t mean that their visual sense is weakened. Students who have a poor visual sense might become overwhelmed by a large number of posters or visuals in a classroom, and not be able to focus on the right poster at the right time.

The **gustatory or tasting sense**, is one of our two “chemical” senses that allows us to “detect chemicals of foods, it gives you information about the things that enter your mouth” (Delaney, 2009, p. 17). Individuals can be oversensitive or under sensitive to taste, and often chose what they eat based on how it feels in their mouth or in their hands, the smell, the color of it, the temperature, or a combination of textures (Kranowitz, 2005). The gustatory sense can become challenging at snack and lunchtime, because some

students will refuse to eat foods that do not fit the textures, temperature, or color that they prefer.

The **olfactory** or **smelling sense** is closely related to the taste sense, and is the other “chemical” sense. When we smell, the process that occurs begins with sensing chemicals in the air, registering them, and then classifying information about the odors we smell around us into something we are familiar or not familiar with (Delaney, 2010). For example, when walking through the hallways around 11:30 am in a school, there can be a variety of smells wafting through the hallways because lunch is typically being prepared or served at that time. People who have a developed olfactory sense would be able to register that smell as a known food, realize it is being prepared in the cafeteria, and then move on from that instantaneous thinking process. Many people with ASD are bothered by smells and odors that they experience around them day to day, and would potentially find the cafeteria lunch smell discomforting. In addition to lunchrooms, this is also a very common issue in houses with an open kitchen or walking down a street filled with restaurants in a city.

The **vestibular** or **movement-balance** sense helps you to understand “where your body is in relation to the ground” (Delaney, 2009, p. 16). The receptors for this sense are “located in the vestibule in the inner ear; it indicates where you are relative to the ground and other objects” (Delaney, 2009, p. 16). If a child has a poorly functioning vestibular system you can usually tell by looking at them because they have symptoms like, “exaggerated emotional response to antigravity movements way out of proportion with the actual possibility of falling” (Biel & Peske, 2005, p. 39). Some children experience movement discomfort when they move fast or spin (Biel & Peske, 2005) which can cause them to make unexpected erratic movements, like when a student runs too fast to get into line and then has to halt to a stop by running into one of his/her peers.

The **proprioceptive** sense or **body awareness** system tells “you where all of your body parts are relative to the others and how they are moving in relation to each other” (Delaney, 2009, p. 16). This internal body awareness is dependent on “receptors in your joints, muscles, ligaments, and connective tissue” and can appear as a child looking uncoordinated, or more commonly described as “clumsy” by adults (Biel & Peske, 2005, p. 33). This could look like a student frequently dropping things that he/she is holding like a folder, pencil, or book, because he/she isn’t able to plan or communicate how much pressure he needs to place on the objects in order to keep them in his/her hands.

2. Current Research

The current research shows that students who engage in sensory activities and interventions show visible signs of relief from pain and discomfort. Sensory activities can be done in a variety of ways, but are most commonly seen at occupational therapy clinics, sensory gyms, or the occupational therapy room in a school. The current research in the field of SPD has shown that SPD can exist as a stand-alone disorder. Research done at the University of California San Francisco shows that, “children affected with SPD have quantifiable differences in brain structure, confirming a biological basis for the disorder that sets it apart from other neurodevelopmental disorders such as ADHD and autism” (Miller, 2014, para. 3). Upon observing the brains of kids with SPD, they found

that their brains showed less connectivity in the “basic perception and integration of tracts of the brain that serve as connections for the auditory, visual and somatosensory (tactile) systems involved in sensory processing” (Miller, 2014). This means that the areas of their brain associated with sensory processing are not able to communicate as clearly with each other as those with typically developed brains. The study also shows that we can measure the success of sensory processing interventions by looking at brain connectivity. Another study done by the SPD Foundation in 2014 found that students who participated in therapy sessions based on the STAR treatment model, 3-5 times per week improved in “levels of anxiety, attention, hyperactivity and aggression” (Harolds & Walker, 2014). This study is a landmark study because it shows that many of the negative symptoms of SPD that we see in schools can be alleviated through sensory-based therapy.

3. Controversies

The American Academy of Pediatrics (2012) argues that SPD is not a stand-alone disorder because there is not enough research to support that, “children who present with sensory-based problems have an actual ‘disorder’ of the sensory pathways of the brain or whether these deficits are characteristics associated with other developmental and behavioral disorders” like ADHD and ASD. Thus, SPD is not currently included as a diagnosis in the DSM-V, but “what is accepted in the wider clinical community is that many children do have unusual and sometimes problematic sensory responses, including most of those kids who are eventually diagnosed with autism” (Arky, 2013, para. 8).

There is a movement in the field towards recognizing SPD as a stand-alone disorder because of research that shows distinct differences in the brains of individuals with symptoms of SPD and those with ASD. Research done at the University of California San Francisco shows that, “children affected with SPD have quantifiable differences in brain structure, confirming a biological basis for the disorder that sets it apart from other neurodevelopmental disorders such as ADHD and autism” (Miller, 2014, para. 2). We are at the forefront of a movement where SPD is starting to become recognized as something that individuals can experience as a stand-alone disorder, which would impact interventions and the experience of “5%-16% of kids in the general population” who are affected by SPD (Miller, 2014, para. 5).

Chapter 2: What are some signs of Sensory Processing Disorder?

1. Overview of signs based on sensory systems

As children are developing, they can begin to fall behind in sensory system development, which can cause them to struggle to “read” the environment around them in the way that typically developing individuals do. This could cause them to react inappropriately or in a way that makes them uncomfortable. Additionally, “stress from sensory experiences, along with academic demands, social anxiety, and adult expectations in the secondary setting, can accumulate and result in negative behavior, even meltdowns” (Culp, 2011, p. 67). In order to ease this discomfort and prevent potential meltdowns, it is important to figure out which of the sensory systems is contributing to the individual’s atypical perceptions, and if the response to stimulation is

under reactive/hyposensitive, or overactive/hypersensitive. Adolescents who are hyposensitive are going to seek out sensory experiences, and adolescents who are hypersensitive may feel overwhelmed by sensory experiences (SPD Foundation, 2016). Here are some of the behaviors and symptoms that a child might exhibit if they are experiencing sensory processing challenges. As you are reading, you may want to put a star next to behaviors that are of concern in the student your team is focusing on for potential sensory challenges.

Vestibular Processing

If a student is hypersensitive they can be seen...	If a student is hyposensitive they can be seen...
<ul style="list-style-type: none"> ● Feeling uneasy if feet leave the ground ● Experiencing dizziness or nausea associated with movement ● Bumping into things ● Having poor balance ● Not settling down after a movement activity (can become aggressive) ● Turning whole body when looking at something 	<ul style="list-style-type: none"> ● Enjoying running around, or spinning ● Rocking, bouncing, or fidgeting ● Taking risks during recreational activities ● Having poor bilateral coordination or balance ● Slumping at desk ● Having low muscle tone and alertness level



For an intervention try...	For an intervention try...
<ul style="list-style-type: none"> ● Moving slowly when walking ● Holding head upright in movement activities ● Placing objects at arm level height to avoid bending over ● Placing a stool under feet when sitting down ● Varying body position when completing work, like using a desk, beanbag or chair 	<ul style="list-style-type: none"> ● Doing jumping jacks or push ups ● Using hand railings when possible on steps ● Using clear pathways without books in aisles or chairs in the way ● Passing papers in class ● Bending over ● Taking classes that have movement, like gym ● Attending activities like school dances or plays ● Sitting with your back upright and feet on floor ● Putting away chairs ● Running teacher errands ● Sitting on a disco sit

	<ul style="list-style-type: none"> ● Spinning in an office chair ● Dancing
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Adapted from Culp, 2011, pp. 58-59

Proprioceptive Sensory Dysfunction

<p>If a student has proprioceptive dysfunction they can be seen...</p>
<ul style="list-style-type: none"> ● Hiding under objects ● Avoiding or craving crashing/bumping into things ● Chewing on clothing or other objects ● Putting body into strange positions ● Turning entire body to look at something ● Biting or head-banging ● Finding it difficult to manipulate small objects, such as buttons ● Having low muscle tone ● Leaning or flopping onto things ● Having a weak grasp ● Misinterpreting body sensations such as hunger ● Having difficulty planning gross and fine motor movements



<p>For an intervention try...</p>
<ul style="list-style-type: none"> ● Carrying and delivering heavy items ● Wearing a heavy backpack ● Doing jobs around the school building like sweeping, wiping tables, erasing boards or rearranging desks ● Sitting in a quiet corner with pillows or beanbags chairs ● Putting a heavy book on lap ● Climbing stairs ● Sitting/leaning with back against wall ● Carrying books close to body with hands touching opposite elbows

Adapted from Culp, 2011, pp. 63-64

Tactile Sensory Dysfunction

<p>If a student has hypersensitivity they can be seen...</p>	<p>If a student has hyposensitivity they can be seen...</p>
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<ul style="list-style-type: none"> ● Preferring to touch rather than to be touched ● Reacting emotionally when unexpected touch occurs ● Disliking crowds or standing in line ● Being sensitive to wearing certain types of clothes or shoes and socks ● Avoiding tasks that are wet and messy ● Overreacting to temperature ● Disliking textured foods ● Rubbing places on body that have been touched ● Walking on toes to limit touch to feet 	<ul style="list-style-type: none"> ● Liking pressure in the form of tight clothing, hugging tightly, or crawling under heavy things ● Enjoying rough-and-tumble play ● Being unaware of injuries, messy face, runny nose, or dirty hands ● Being unaware of temperature of water ● Being unaware of being touched ● Putting objects in mouth ● Biting self ● Picking at skin, nails, scabs excessively
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For an intervention try...	For an intervention try...
<ul style="list-style-type: none"> ● Telling peers he/she does not like to be touched and asking for more personal space ● Using rubber bands and tough clap or putty in class ● Using soft materials like fabric to pet ● Standing at the end or in front of lines ● Sitting in the back row of large groups so as not to get bumped ● Having a locker at the end of a row to avoid excess contact ● Not being approached from behind ● Sitting on side of group, not in middle ● Using warm water to wash hands instead of cold 	<ul style="list-style-type: none"> ● Using fidgets like paperclips, stress balls, rubber bands or putty ● Doing hands-on activities ● Using gel roller, not ballpoint pens ● Using a keyboard to take notes ● Being allowed to run hands along hallway walls ● Doing toe raises, standing on one foot while waiting in line ● Being encouraged to participate in group activities ● Having varied routines ● Using raised line paper ● Feeling Velcro under desk top or under chair seat ● Giving high fives

Adapted from Culp, 2011, pp. 68-71.

Gustatory Sensory Dysfunction

If a student has hypersensitivity they can be seen...	If a student has hyposensitivity they can be seen...
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<ul style="list-style-type: none"> ● Objecting to tastes, textures, and temperatures of food ● Being a picky eater ● Gagging when eating ● Using the tip of tongue to taste foods ● Disliking food on face or lips ● Disliking strong smells ● Preferring water over other liquids 	<ul style="list-style-type: none"> ● Eating or licking inedible objects ● Desiring taste and texture in foods (hot and spicy, crunchy, salty, sour, etc.) ● Regurgitating when eating ● Drooling ● Overfilling mouth when eating ● Biting nails or self ● Not noticing when face is messy ● Not noticing strong smells ● Having messy eating habits
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For an intervention try...	For an intervention try...
<ul style="list-style-type: none"> ● Chewing gum, straws, or toothpicks ● Sucking on bland hard candies ● Eating a lunch from home with foods that are familiar rather than cafeteria food ● Receiving sauces and dressings on the side ● Doing yoga or other relaxing breathing techniques ● Reducing strong-smelling objects or foods in environment 	<ul style="list-style-type: none"> ● Chewing gum with strong flavors ● Eating mints ● Sucking from different types of straws ● Using a water bottle with a spout top ● Eating snacks that are spicy, crunchy, sour, or salty ● Drinking seltzer water ● Eating frozen foods before meals (ice cubes, popsicles) ● Using tubing on end of pencil that you can chew ● Taking a water fountain break

Adapted from Culp, 2011, pp. 72-73.

Visual Sensory Dysfunction

If a student has hypersensitivity they can be seen...	If a student has hyposensitivity they can be seen...
<ul style="list-style-type: none"> ● Covering and shielding eyes from lights ● Looking at tiny particles and details of items ● Looking down most of the time, as in lack of eye contact ● Being bothered by certain colors or patterns 	<ul style="list-style-type: none"> ● Staring at objects or people ● Looking into a bright light, such as the sun ● Flicking fingers in front of eyes ● Obsessing about reflections and feeling the edges of items, looking for a visual boundary ● Hesitating on steps

<ul style="list-style-type: none"> ● Noticing all actions in a room ● Experiencing difficulty copying from the board if board has lots of information ● Frustrated by not finding objects in a cluttered background ● Getting lost easily in familiar places 	<ul style="list-style-type: none"> ● Not noticing when people come into the room ● Illegible handwriting, difficulty staying in lines, or copying from overhead/board/projector
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For an intervention try...	For an intervention try...
<ul style="list-style-type: none"> ● Using dim lights ● Using curtains or blinds over windows ● Decreasing visual clutter and distractions like covering bookcases with fabric ● Using a reading guide to isolate printed material ● Using graph paper for organization of numbers of columns of information ● Being seated away from doorways and windows ● Seeing a decreased amount of printed material on page at a time ● Being provided visuals for multiple step items, breaking down task one step at a time ● Using neutral colors in classroom decorations ● Organizing items so they are easy to find ● Seeing a designated area on the whiteboard or chalkboard for important information ● Seeing clean whiteboards ● Highlighting key words placed on whiteboards ● Limiting copying from the board ● Taking visual breaks by closing eyes ● Having a fish bowl or lava lamp in classroom 	<ul style="list-style-type: none"> ● Being in a colorful, brightly lit room ● Using visual schedules ● Sitting near busy places in the classroom (near teacher) ● Using highlighters ● Using bold-colored paper ● Using a three-ring binder laid on its side for desktop writing ● Using a variety of fonts in written work ● Rearranging objects in classroom to decrease familiarity ● Having labels on drawers and cabinets ● Taking notes to be reviewed again ● Using colored binders ● Working puzzles such as Sudoku, word searches etc., for breaks

*Many of these suggestions are for classroom environment modifications and can be used by the student advisor as suggestions for teachers in their classrooms.

Adapted from Culp, 2011, pp. 76-77

Auditory Sensory Dysfunction

If a student has hypersensitivity they can be seen...	If a student has hyposensitivity they can be seen...
<ul style="list-style-type: none"> ● Being extremely sensitive to loud or unexpected noises ● Holding hands over ears ● Making noises to cover up environmental sounds ● Becoming easily frustrated ● Being distracted by sound so as to not finish tasks 	<ul style="list-style-type: none"> ● Appearing to ignore sounds or spoken words in the environment ● Not responding to name being called ● Making noises such as banging objects or slamming doors to stimulate own system ● Enjoying vibration due to the noise ● Enjoying noisy areas (e.g., bathrooms, crowds, cafeteria) ● Having difficulties with grammar and/or spelling ● Having difficulties with pronunciation of words when reading or speaking



For an intervention try...	For an intervention try...
<ul style="list-style-type: none"> ● Working in a quiet environment ● Having minimal auditory distractions ● Wearing headphones with soft, slow music ● Using white noise and other soft environmental sounds in classroom ● Sitting away from hallway or noisy areas of the classrooms ● Warning for loud occasions such as fire drills or assemblies ● Receiving directions one at a time ● Receiving handouts to supplement verbal information ● Participating in smaller groups to maintain focus ● Closing the classroom door 	<ul style="list-style-type: none"> ● Listening to loud, energetic teachers ● Wearing headphones with upbeat music ● Sitting near teacher ● Asking for repetition of verbal directions ● Getting directions in written form ● Recording lectures for re-listening at a later time ● Using assignment books or smart phones for reminders ● Receiving auditory cues, like a bell or clap, to get attention ● Doing partner activities ● Talking job in class (making announcements) ● Receiving directions given in small

	steps <ul style="list-style-type: none"> ● Having examples of assignments ● Reading aloud to another student
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Adapted from Culp, 2011, pp. 80-83.

Olfactory Sensory Dysfunction

If a student has hypersensitivity they can be seen...	If a student has hyposensitivity they can be seen...
<ul style="list-style-type: none"> ● Smelling odors others cannot ● Avoiding foods, objects, places or persons due to smell ● Having issues with toileting (due to smell) ● Interpreting that something “stinks” when a typical peer deems it as “normal” 	<ul style="list-style-type: none"> ● Not noticing unpleasant odors ● Smelling objects and people inappropriately ● Wanting to smell strong odors excessively (like glue) ● Wetting the bed ● Playing with feces



For an intervention try...	For an intervention try...
<ul style="list-style-type: none"> ● Placing favorite scent on piece of material so this can over-ride undesirable smells ● Informing peers and teachers not to wear perfume and cologne ● Using non-scented products ● Using same products over and over ● Visiting different areas of school with various smells often to learn differences in location 	<ul style="list-style-type: none"> ● Using cotton balls soaks in aroma therapy oils ● Using scented lip balm or gloss ● Wearing perfume or cologne ● Taking fresh air break ● Carrying scents in backpack to use when feeling tired

Adapted from Culp, 2011, pp. 84-85.

2. What do I do if I notice these signs?

As an educator, we spend an immense amount of time with our students and have the chance to see them in many different environments, and with varying demands placed on them. This allows us to observe countless positive behaviors, as well as puzzling and sometimes problematic behaviors in students. As we gather more information about our students, we can begin to make hypothesis about what could be causing any questionable

behavior. However, it is important to note that as educators we are not psychology professionals or occupational therapists and thus cannot make any diagnoses or “prescribe” a specific sensory diet for a child, but we are able to try out various interventions based on our observations to better the school experience of a child. If you notice any of these signs above, and they are impacting a child's success at school, the first thing to do would be to contact your learning support coordinator, school psychologist, or social worker. Your concerns surrounding this child and his/her behaviors should be brought up at the next child study team meeting, and then as a team you can determine what interventions will be best for that student. At this meeting the team should also discuss what supports this student is receiving already, and if it is beneficial for them in his/her current setting. Following the meeting with the child study team, one member of the team should contact the family of the child and discuss the concerns that they have regarding his/her sensory challenges, and how they are impacting his/her day-to-day success at school.

3. SPD and ADHD

According to The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013), the official definition of Attention Deficit Hyperactive Disorder (ADHD) is, “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (p. 61). The DSM-V goes on to state that the three presentations of ADHD are, hyperactive-impulsive, inattentive, or a combination of symptoms from either of those categories, in a mild, moderate, or severe scale. Garland (2014) states that the greatest delays that children typically show were “in areas that connected sensory to executive function control (NIMH, 2007) which may help to explain some overlap in sensory modulation symptoms and ADHD” (p. 136). Some of the physical reactions that students with ADHD exhibit can be attributed to their sensory systems being dysregulated. For example, Johnny will often run quickly into my classroom and bump into my bookshelves knocking things over as he enters. While this is a characteristic of hyperactivity, it also shows that Johnny has a hypersensitive vestibular processing sense, which is impacting his balance (Culp, 2011, p. 58). To help him regulate his vestibular sense I put a thick piece of tape down the middle of the walkway between the bookshelves and worked with him to take his footsteps close to the piece of tape. This exercise helped him to slow down and focus on walking in a straight line rather than zig zagging and bumping into the bookshelves on the walls.

In school, a student with inattentive ADHD “often fails to give close attention to details or make careless mistakes in schoolwork...has difficulty sustaining attention in tasks or play activities...does not follow through on instructions and fails to finish schoolwork...and loses things necessary for tasks or activities (e.g., school assignments, pencils, books)” (Bressert, S., n.d.). While many typically developing students experience these behaviors once in awhile throughout middle school, a student who experiences many of these on a daily basis is likely going to struggle immensely with academics in school. Additional characteristics that can be found in children diagnosed

with ADHD are “disorganization, sensation seeking behavior, daydreaming, poor coordination, memory problems, and persistent obsessive thinking” (Flick, 1998, pg. 2).

4. SPD and Autism Spectrum Disorder

SPD is most commonly known as a symptom of Autism Spectrum Disorder (ASD). Children with ASD have a co-occurrence rate of 72% with sensory processing disorder (Garland, 2014), and so it is important to understand ASD symptoms and interventions. The DSM-V’s definition of ASD is, “persistent deficits in social communication and social interaction across multiple contexts,” which involves “deficits in social reciprocity, nonverbal communicative behaviors used for social interaction, and skills in developing, maintaining, and understanding relationships” (American Psychiatric Association, 2013, p. 31). Additionally, the individual must exhibit “restricted, repetitive patterns of behavior, interests, or activities” as characterized by two or more of the following; “stereotyped or repetitive motor movements, use of objects or speech, insistence on sameness, highly restricted, fixated interests, or hyper- or hyporeactivity to sensory input” (American Psychiatric Association, 2013, p. 50).

If a student is diagnosed with ASD, it will appear on their IEP as the label “Autism.” If you have a student who is diagnosed with ASD, it is highly likely that they will experience sensory processing challenges of some degree. Culp (2011) states that, “persons with ASD are unable to pay attention to the important sensory information and filter out the unnecessary details” (p. 39). This is why you may see students who have ASD become overwhelmed in areas like the cafeteria and cover their ears. This reaction is because they are receiving auditory input from dozens of sources at once, and they can’t filter what input is important and what input is extra. The DSM-V specifies sensory problems as a symptom of ASD through the criteria, “hyper- or hyporeactivity to sensory input or unusual interests in sensory aspects of the environment (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement)” (American Psychiatric Association, 2013, p. 50).

Chapter 3: IDEA and Receiving Services

1. IDEA: What is it?

The Individuals with Disabilities Act was revised in 2004 and is designed to protect students and their families who have disabilities and give them a free and appropriate public education that provides related services and special education to meet their individual needs (IDEA, Section 601, 2004). IDEA defines a child with a disability as,

(3) CHILD WITH A DISABILITY.— “(A) IN GENERAL.—The term ‘child with a disability’ means a child— (i) with mental retardation, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance (referred to in

this title as ‘emotional disturbance’), orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and (ii) who, by reason thereof, needs special education and related services (IDEA, Section 602, 2004)

Under this law, students who exhibit sensory processing challenges as their stand alone symptom that impacts their day to day success in school would be diagnosed as having an “other health impairment” on their IEP, and would be protected under the law in schools. Students who have sensory processing disorder comorbid with ASD or ADHD will likely have ASD or ADHD written on their IEP as their main diagnosis because sensory challenges is seen as a symptom of those more prominent disorders.

2. How can a student get services?

A student can receive services under IDEA in New York State if it is decided by the Committee on Special Education (CSE) that the student has one of the thirteen aforementioned education disabilities. The parent, teacher, administrator, or other school professionals are required to refer a child that they think might have a disability, and then the CSE initiates the evaluation process. After going through the evaluation process, the school based support team and CSE recommend an educational program that they feel will support the student. This recommendation will involve an appropriate diagnosis, classroom setting (Integrated co-teaching model, special education teacher support services, or special education classroom), and related services that they should receive.

3. What services can a student receive?

Under IDEA (2004) in section 614 the student’s IEP must have:

A statement of the special education and related services and supplementary aids and services, based on peer-reviewed research to the extent practicable, to be provided to the child...and a statement of the program modifications or supports for school personnel that will be provided to enable the child to advance appropriately toward attaining the annual goals.

According to IDEA (2004) the related services that a student could be entitled to are speech therapy, occupational therapy, counseling, social work services, interpreting services, mobility services, and school nurse services. The CSE and school based support team will decide together based on results of evaluations what services will best support the unique needs of the student.

The most common service that students who have sensory processing challenges receive is occupational therapy, because it focuses on an individual's "attention span and arousal level, sensory and processing skills, fine and gross motor skills, activities of daily living, visual-perceptual skills, handwriting, and assistive technology" (Arky, 2016, p. 1). Other related services that a student with SPD might have is a classroom aide to help implement therapies, "a behavioral support specialist (to track and analyze data about sensory-related behaviors)...and a guidance counselor or 'safe person'...to serve as the instructor of stress-management techniques" (Moyes, 2010, p. 137-138).

However, aside from related services there is also a section in the IEP where the school based support team must write any accommodations that need to be provided in the classroom or around the school for the student to be successful. These accommodations could include but are not limited to; "preferential seating...sensory diet...advance warning of the fire alarms...de-stress time in the sensory room...opportunity for movement...physical-education accommodations...use of earplugs...establishment of a de-stress area in the classroom and school" (Moyes, 2010, p. 134-136). It is up to the school based support team to determine which of the accommodations are going to be supportive to the student with sensory challenges, and then track data to see if they are helping the student improve in his/her sensory regulation.

Chapter 4: Roles of each team member in the school

1. Who is going to be involved in the student based support team? What are the responsibilities?

This team will convene to support the student that has sensory processing challenges and help to put interventions in place to alleviate pain and discomfort caused by SPD. Many of the team members are part of the IEP team, but there are people added who are not typically part of that team.

Student Advisor: One faculty member, preferably the learning support coordinator, school psychologist, or social worker should become the student's advisor. This person will serve as the main organizer and facilitator for meetings about the student, as well as the point person for all choices made regarding interventions for the student. Additionally, the advisor will be responsible for weekly one on one meetings with the student to teach sensory strategies that the student can use independently, as well as discuss sensory symptoms and behaviors.

Team of Teachers: The team of teachers should consist of all teachers that work with the student throughout the day. While I know it can be challenging to find a common meeting time for multiple teachers at once, it is important that all teachers who work with the student are involved, at least in the beginning, so that an accurate image of the student's day can be formed. Additionally, it is important to hear examples of regular sensory experiences that the child has throughout the day to help with brainstorming solutions around what *does* help the student.

Administrator: An administrator should be present at each meeting so that they can be involved in the choices being made to support the student. It will be beneficial for the team to have an administrator who is knowledgeable about SPD and the student's challenges, so that when any challenges occur they can serve as a resource. Additionally, since some of the changes will impact classroom environments and minor changes in classroom routines, the administrator will appreciate being a part of the discussion and choice making.

Student(s): What sets this guidebook apart from other sensory interventions is that the student is a major part of the solution. The student will be learning more about his/her body, and then becoming empowered to advocate for his/her needs in the classroom. This child-centered approach ensures that the student is in control over how to help regulate their senses, which will empower them for years to come as they move beyond middle school and into high school. The student should be higher functioning cognitively with minimal to adequate reading and writing skills so that they can do independent reflection daily in a journal.

Parent(s)/Guardian(s): In order to support the student as much as possible it is essential that the parent or guardian is invited to be a partner and essential team member. It is likely that the parent can use one or many of the strategies that work at school, at home. Additionally, the parent(s) should be included in some of the team meetings that you have when you discuss the student of concern, because they can also provide you with valuable information about sensory symptoms and behavior that they may see at home, as well as strategies that work for the student.

Occupational Therapist: The student of concern might already receive occupational therapy services based on their IEP. If they do already receive OT services, then you should include the occupational therapist at the meeting so that you can learn more about the current sensory activities and exercises that the student might already be doing. Additionally, the OT will be able to provide a wealth of knowledge about the student's physical abilities and limitations that may be of help to you.

2. How do I (the student advisor) communicate with the team of teachers?

Observations of Sensory Behavior

This form should be used by the student advisor to conduct observations of the student throughout the day. The student advisor should try to observe the student in each of his/her classes or environments in order to get a full picture of the student's behaviors throughout the day. Record both positive interactions that the student has with his/her environment as well as more challenging interactions.

Name: _____

Date: _____

Time	Environment	Situation	Student Actions	Sensory System

Figure 1 - Student Advisor Observation Form

3. How do I (the student advisor) communicate with the parents?

The student will bring home his/her journal every day so that the parents are able to stay updated on the student's daily school experience. In the journal they will be able to see the strengths and challenges that the teacher reports, the times of day when the student feels he/she is having sensory challenges, and any goals that the student has made for trying a new intervention. They will also be able to see the student's notes on how the new sensory interventions are making him feel each day. All of these materials will serve as a tool for the parents to ask questions to the student about the interventions and how they are making him feel. Sometimes, students are willing to open up more to their parents are home than they do at school, so it is important that there is continuous conversation happening at home about the changes that are being implemented at school. Also, if an intervention is making the student feel more comfortable at school, then they are encouraged to try it at home as well. If a parent would like further reading to answer questions they have regarding their child's sensory challenges, Carol Kranowitz's (2005) book, *The Out-Of-Sync Child: Recognizing and coping with sensory processing disorder*, and her other book *The Out-Of-Sync Child Has Fun* (2003) are valuable resources for parents.

Chapter 5: Setting The Teacher Team Up for Success

1. Child of study and how sensory integration impacts learning and behavior

The student advisor should begin by introducing the student, give basic information about the student (age, grade, disability if applicable) and then give a short synopsis of the overall strengths and challenges that the student has in school. It is important to include aspects of the student's personality so that the team feels like they have a holistic view of the student rather than just viewing their challenges. Then, the advisor should explain the specific concerns regarding sensory processing that have been brought up by either the student, a teacher, or member of the administration, and give examples of how the sensory challenges have manifested itself into behavioral, academic, or emotional challenges throughout the school day. Moyes (2010) says, "when our

sensory system is not functioning well, we may experience a heightened level of stress. We feel anxious and irritable. We may attempt to shut out excessive sensory stimuli by withdrawing in whatever way we can from our environment. We might be short-tempered” (p. 18). If a student is consistently feeling anxious, stressed, and irritable, they are not going to be able to meet academic, emotional, and social expectations as best they can. As educators we must, “understand how sensory deficits affect student performance and be ready and willing to implement support mechanisms for these students” (p. 18).

2. Train teachers in exercises and sensory tools

The student advisor should choose 5-6 different exercises or sensory tools from the interventions on pages 7-14 that a student might be using throughout the day to support their needs either in the classroom or during transition times. The student advisor should bring tools that Culp (2011) lists as useful like, a disco sit (p. 61), pencil topper that can be chewed on (p. 75), Velcro (p. 71), and tangles (p. 69), and demonstrate the uses for each tool. The teachers will see how easy and noninvasive the interventions are, and will feel a greater understanding of how to lead a student in one of these activities.

3. Teacher feedback and questions

Most of this process will feel new to your team of teachers, and so it is essential that you have a consistent and thorough plan for teacher feedback. Weekly focus meetings should be set up with an agenda that everyone can see, with a clear spot for teacher questions and feedback at the end of each meeting. It can be challenging for teachers to change aspects of their classroom environment and routine to fit the needs of one student, and often times they will not see success right away. Additionally, many of the strategies might feel unconventional at first for teachers who are not used to working in a special education setting. Thus it is important that as the student advisor we make purposeful spots for teachers to share their concerns and ask questions about the process and the student. There should also be a non-oral way to share questions and concerns in case some teachers don't feel comfortable bringing it up in a team meeting, or if they think of something outside of a meeting. I suggest using a form like the one seen below as a way for teachers to share their thoughts.

Name: _____

Date: _____

What is something that has been going well in this process? It could be about the team meetings, your communications with the student, or the student's successes in the classroom.

What is something that you would like more support in or that is challenging right now?

What are lingering questions that you would like to be brought up at the next meeting?

4. Room set-up

Until the team learns more about the student's individual sensory needs through one on one sessions, the teachers won't know exactly how to set up their rooms to best support the student's environmental needs. See section titled, *Visual Dysfunction* for a list of interventions for teachers to use in their classrooms if the student is hypersensitive to visual surroundings or hyposensitive to visual surroundings. It is important that as teachers we remain open minded about the classrooms that we create and how some aesthetic choices that we make can be detrimental to our students' daily success. This might mean adding something new to your classroom that you have never had before, like a beanbag chair, to provide cushiony seating. It might mean slightly changing something that you already have, like switching a light bulb to make the light softer and less harsh on the eye. Lastly, it could mean removing something from your room that is over stimulating to a student, like taking down a brightly colored poster.

5. How to record activities, successes, challenges

As a member of the student based support team, it is essential that you write down and track data to measure if you are making improvements or not. There are many different types of data you can collect, but we suggest using a more narrative log to ensure that you are able to write specific examples of behavior. Below you will see a form that can be used by all teachers who work with the student who are going to be changing any aspect of their own classroom environment or routine. If all teachers use this form, then patterns can be found to detect what strategies are working in classrooms and what strategies aren't working.

Teacher Name: _____ Date: _____

Time/Location	Current environmental trigger	Adaptation made to environment	Successes	Challenges

Figure 2- Teacher Observation Form

6. Weekly communication

The full team involving the student advisor, student, all teachers working with the student, and teacher team should meet each week to discuss progress and continued questions that remain regarding the student. At each meeting, teachers should bring any observation charts with them documenting adaptations they have made in their classrooms, as well as successes and challenges of each adaptation. The student advisor should communicate with teachers before the meeting to bring any questions or concerns that they have with them to be addressed at the meeting.

7. Trouble-shooting

At every meeting there will be opportunities for members of the student team to share questions and concerns that they have regarding the student or any aspect of the process so far. When those concerns are brought up, the student advisor should lead the team in brainstorming solutions for the concerns to make sure that the teachers continue to feel supported. Because changes in a student's environment can sometimes lead to *more* stress and potentially meltdowns, the teachers should feel comfortable calling the student advisor, school psychologist, social worker, or principal if they feel like the situation has become a threat to the student. Another adult coming to the classroom where the student is should never be seen as a punishment for the student, but rather seen as a new face that may be able to make him/her feel better in that moment. Such experiences should always be debriefed after with all adult individuals involved, and debriefed by the student advisor and student separately.

Chapter 6: Overview of Sessions With Student

The student advisor and the student will meet weekly during the school day to discuss the student's sensory challenges in the school. The following outline of sessions is a recommended outline and order to complete the sessions in, however it is up to the discretion of the educator to switch the order of the sessions based on the student's needs or time constraints. The sessions should begin with activities aimed at getting to know each other and establishing trust. In these sessions the student advisor and student will engage in activities like taking interest quizzes, discussing habits, and creating a journal that will be used throughout the sessions. Next, the student advisor should gather information from the student about his/her sensory challenges throughout the day, as well as share observations and concerns from the teacher team. This is the session where the student advisor explains why the student may be having these challenges, and introduces the sensory system to the student. Then, the student will be writing down observations in the journal about how his/her body feels throughout the day in each class. These observations will be used to help the student advisor and student choose sensory systems to focus on, and specific interventions that will target that system. Together the student and student advisor will create a goal for the student to focus on, and practice the intervention that he/she will be using. The process ends with the student trying the intervention in class, reflecting on how it felt, and then adding new interventions as needed until the student feels regulated throughout the day.

Session 1: Getting to Know Each Other

Activity 1: Learn More About The Student

Teen Sensory Survey

Here is a recommended website with a resource for how to get to know the student and his/her interests, strengths, and weaknesses ("Instructions for," 2004).

http://www.ateachabout.com/Teen_Survey_Instructions.pdf

Activity 2: Introduce Broad Goal

Talk: I have noticed that there are some parts of the day at school that are causing you more stress than success. I know that middle school is challenging enough as it is, and I don't want you to have additional environmental or physical factors that are causing you even more stress. I want to help you learn strategies and exercises to self-regulate your body throughout the day, so that you can be in charge and in control of how your body feels in all types of environment.

Activity 3: Create A Journal

Buy two small notebooks, one for the student advisor and one for the student. The student will use the notebook throughout the weekly sessions to store any materials that you use in your meetings. Additionally, they will use it for written reflection while they are in classes so that they can write down their sensory experiences in the moment. It is important for you to have a notebook or binder as well to collect all materials that you use in your sessions, as well as model to the student what good journaling and reflection looks like. For some students, writing journal entries and answering more personal questions might be something they enjoy, but for other students it might be something that you have to teach. The notebook can be a small binder with lined paper in it or a more traditional black marble notebook. In this session, encourage the student to decorate the front cover or front page of their notebook with their name and pictures of things that they like. They can also cut out pictures from magazines and newspapers to make a collage if they prefer that to drawing.

Session 2: Discover and Share Sensory Challenges

Activity 1: Daily School Schedule

Talk: Here is your daily school schedule. It outlines each class you go to, what time it is at, what room it is in, and who your teacher is. Middle school can be really overwhelming because of all the different classrooms that you go to each day, each with a different environment and set of expectations. We are going to work together to give you strategies to make the transitions from class to class easy and comfortable, instead of chaotic and stressful. On the schedule below, put a star next to classes that are easier for you, or that you feel comfortable in. Circle the classes that are more challenging for you.

7:20-7:55	Homeroom - room 310
-----------	---------------------

8:00-9:30	Math - room 306
9:35-11:15	ELA - room 310
11:20-12:00	Art - room 307
12:05-12:55	Science - room 312
1:00 - 1:20	Lunch - cafeteria
1:20-1:40	Recess - schoolyard
1:40-2:25	Social Studies- room 312
2:30- 3:10	Text Analysis - room 310
3:10-3:50	Electives
3:50-4:10	Dismissal

Figure 3 - Student Schedule

Activity 2: Student Strengths and Challenges

Now, the teacher shares sensory observations of behaviors and symptoms that have been gathered from the team of teachers. Fill out the following form ahead of time and bring it to this session. Fill it out using language that is student friendly, so that the student can refer back to your observations in their journal if they have forgotten.

Strengths

I noticed that you do really well in _____, because I have seen you _____.

I noticed that you are really good at _____, because I have seen you _____.

Challenges

_____ seems to be a challenge for you because I notice _____.

I noticed that you don't like _____, because I have seen you_____.

Ask: Put a “✓” next to the ones that you agree with, and an “x” next to any that you disagree with.

Figure 4- Student Strengths and Challenges

Activity 3: Introduce Sensory System

Talk: The reason why you might be having these challenges in school and feeling uncomfortable throughout the day is because your senses might not be working smoothly.

Teacher actions: Show student a picture of a brain with areas for sensory processing labeled. Refer to Mucklow's (2009, p. 7) book, *The Sensory Team Handbook* for strong visuals of the brain.

Activity: Point to sections that you are familiar with and give an example of how your body uses that part of your brain. Point to sections that you are not familiar with, and I will give an example of how your body uses that part of your brain. (Write down any examples that the student gives that show knowledge of sensory systems in their journal).

Talk: In order for your body to run smoothly, all of these sections must process what you are feeling in your body, and at the same time take in information from your surroundings. Think of your body as a train system:

The brain has to manage all the information ‘trains’ coming from the body--such as sights, sounds, smells, tastes, textures, and movement. It has to bring them to the right brain platforms, connect them with other incoming trains, let some messages off to stay in the brain, and send other messages back to the body (Mucklow, 2009, p. 9).

If one train is not connecting to the brain smoothly or at the right pace, than your body does not send out the right messages and your body begins to experience discomfort. This might explain some of the discomfort that you feel throughout the day at school and at home. Refer to Mucklow's (2009, p. 9) book, *The Sensory Team Handbook* for visuals that support this metaphor.

Session 3: Student Journaling

This week, the student will be carrying his/her journal around with them to each class that they go to throughout the day. The student will be asked to write or draw reflections about how his/her body feels in each class and any reactions that the student

had to environmental factors. Here is a template for a journal entry based off of the schedule at ACS. The entry below shows the schedule block for homeroom. For each class, substitute each schedule block on a new journal form so the student can reflect on each class.

In my middle school setting students have a study hall period each day either in the middle of the day, or at the end of the day that lasts 45 minutes. If the student is having trouble remembering to write in the journal after each block, the student advisor should suggest to the student that they take the first few minutes of study hall period to write in his/her journal and reflect retroactively on how their body felt throughout the day. Matty would come to my SETSS room each day for the first 10 minutes of study hall and we would fill out his behavior and academic charts for that day. I would store any charts that he needed to reflect in my classroom in a folder with his name on it, so that he wasn't responsible for carrying out and keeping track of any extra materials throughout the day.

Another way to change the journaling exercises for students who struggle with written expression is for the student advisor to provide images for the student to choose from to show what makes them feel uncomfortable throughout the day. Refer to Mucklow's (2009, pp. 156-161) book, *The Sensory Team Handbook* for pictures that show different activities that have to do with each sense. Additionally, instead of the student recording each intervention they used throughout the day and how it felt, the student advisor could verbally ask the student what went well with the intervention and what didn't go well during transition times throughout the day, and record it as they are sharing. The important part is that the student feels like they are able to reflect on the interventions that are used and that his/her voice remains at the center of the intervention process.

Activity 1: Observe Senses During the Day

	5A
HR 7:20-7:45	310 - Esposito/Myers

In homeroom, do you notice any of these issues with:

Touching?

Yes or No

Give example:

Tasting?

Yes or No

Give example:

Hearing?

Yes or No

Give example:

Seeing?

Yes or No

Give example:

Smelling?

Yes or No

Give example:

Figure 5 - Sense Tracking by Class
(Form adapted from Culp, 2011, p. 92)

This form can be used by students who are able to visually view more text at once and are able to organize their writing more independently. Students should be instructed to check off which sense they may have struggled with in each class

Class	Touch	Taste	Hear	See	Smell	Move- ment	Balance	Describe Situation:
HR								
Math								
ELA								
Art								
Science								
Lunch								
Recess								
History								
Text Analysis								

Figure 6 - Daily Schedule With Senses Checklist

Session 4: Plan Exercises Based on NeedsActivity 1: Determine Activities

Based on the student's responses about what parts of the day are challenging for them, and teachers observations of when they seem to be having trouble during the day, choose one class or time of day to focus on. Using the charts in the section titled, *What are the signs of SPD?* beginning on page 7 of this guidebook, work with the student to choose an intervention to try based on his/her hyper/hyposensitivity. It would be beneficial to have the OT at this session so that they can help the student in choosing interventions that would work best for them, and provide additional guidance in teaching the student how to do the strategy or exercise. For example, if Matty has been having trouble in social studies class with Ms. Fox⁴, and has figured out that he is hypersensitive in his vestibular processing based on the behaviors listed, he could choose the intervention, "placing a stool under feet when sitting down" (Culp, 2011, p. 60). Have a conversation about why this sense may be off at this time of day. It is possible that because he is coming up from recess and going straight to social studies, his body is having trouble switching from a lot of quick, erratic movement to calm and calculated movements. Next, the student advisor should find a small stool and practice with the student how to use it, and see if it feels comfortable. Then, make a goal for Matty to write in his journal so that he can reference it throughout the day and remind him of his new strategy.

Goal:

When I am in _____ class, I will use the strategy _____, when I feel _____.

Filled out example:

When I am in social studies class, I will use the strategy, placing a stool under my feet when sitting down, when I feel like my balance is off.

Activity 2: Role-Play

Now, practice with Matty how to communicate with the social studies teacher, Ms. Fox, about what intervention he will be trying. Role-play with Matty what this conversation might look like so he feels comfortable approaching a teaching and explaining his needs. If Matty would also like a visual reminder, write down the conversation in his journal so that he can refer to it if he forgets what to say in the conversation. Make sure that Matty knows that the role-play conversation is just a model, and the teacher could say something else that is not directly in the practice conversation. That is okay! Just remind him that it is important the he shares the sensory problem he has been having, and then what would like to try to help it.

Conversation

Ms. Fox: *Hi Matty!*

Matty: *Hi Ms. Fox, I have a question about social studies class.*

Ms. Fox: *Yes?*

⁴ Pseudonym used to protect identity of teacher.

Matty: *I have been feeling like I've been losing my balance a lot in social studies class. When I come up from recess my body is having trouble calming itself down, and so I find myself bumping into things like the doorway when I walk in, or wall as I walk to my seat.*

Ms. Fox: *Oh, I'm sorry Matty! Is there anything that I can do to help you?*

Matty: *Yes, is it okay if I use a small stool to put under my feet when I am sitting at my desk? It might help me to keep my balance and not feel like I'm falling over.*

Ms. Fox: *Absolutely! I have a stool in my room that I will put near your seat for you to use when you are in social studies class. Let's meet after class tomorrow to see if it helped you, or if we should try something else.*

Activity 3: Tracking Intervention

Show Matty the form that he will use in his journal to track if the intervention is helping him or not. It is similar to the form that the teachers will be using to track the successes and challenges of the interventions as well. Matty should track the intervention for a week to see if it is helping him, and then bring his chart to the next meeting with the student advisor.

Time	Intervention Used	Things that worked well	Things that were hard

Figure 7 - Student Intervention Tracker

Session 5: Reflect and Refine

Activity 1: Reflect on Intervention

Ask Matty to use his journal entry to help him reflect on if the intervention helped him this week to help him feel more balanced in social studies class. Go through any challenges that he experienced as well as successes, and discuss if this is a strategy that he would like to use every day in social studies, or if he just wants to use it when he feels unbalanced. If the intervention was not successful, go back to the chart on page 7 and choose a different intervention that he wants to try, and repeat the process in session 4 with a new intervention. If the intervention was successful in making him feel more balanced, add the intervention to his daily schedule in his journal so that it becomes part of his daily routine. Here is an example of an updated school schedule:

Time	Class	Interventions	Materials
7:20-7:55	Homeroom - room 310		

8:00-9:30	Math - room 306		
9:35-11:15	ELA - room 310		
11:20-12:00	Art - room 307		
12:05-12:55	Science - room 312		
1:00 - 1:20	Lunch - cafeteria		
1:20-1:40	Recess - schoolyard		
1:40-2:25	Social Studies- room 312	Put a stool under my feet when I feel unbalanced	Small stool
2:30- 3:10	Text Analysis - room 310		
3:10-3:50	Electives		
3:50-4:10	Dismissal		

Figure 8 - Student Schedule with Interventions

There is an intervention column and materials column added to this school schedule. Matty should write the intervention in his own words, so that it is in student friendly terms. The materials section is important because it will help Matty to remember what he needs to have in the classrooms, or what he needs to carry with him in his backpack each day.

Note: Staying organized can be challenging for students with ADHD and ASD, so be sure to continue to highlight what materials are needed for each intervention, but also keep it simple so the student doesn't become overwhelmed.

Activity 2: Adding interventions

Once the student has mastered the first intervention and is feeling successful with remembering to do it at the designated time, bringing the right materials, and reflecting on how the intervention is working, he/she is ready to add a new intervention. At this point, the student should continue using the intervention, but stop reflecting on it so that

they can focus on a new one. Repeat the steps in session 5 and determine another area of need that the student would like to focus on. Use the same forms to create a goal for the student, role play the conversation that the student might have with the teacher, and then try the intervention in the classroom. It is important that when you meet with teachers each week you share with them the new interventions that the student is trying, and ask them to report their feedback based on the observations recorded in Figure 2.

End Goal

The sessions with the student should continue weekly until the student reports that they are feeling more regulated throughout the day, and when teachers no longer have large concerns regarding the student in terms of sensory processing in their class. The student should continue to carry around his/her journal with them as a visual reminder of what interventions work for them throughout the day and the materials that they need to carry with them.

Adaptations:

Another idea for a student who might not have strong enough organization skills to carry around and utilize the journal throughout the day without losing it is for the student to put the most important charts and schedules on the inside of their agenda or planner. For example, I would suggest that the student writes in on his/her schedule what time throughout the day they are doing specific interventions. If your school has access to technology like iPads, you could set up a digital journal for the student to type into throughout the day instead of physically writing it. Alarms could be set within the clock to remind students when to do the interventions.

It is likely that with changes in schedules, weather, and continued physiological changes that come with getting older, the student will need support from the student advisor again periodically throughout the year. The student should always feel comfortable approaching the student advisor if they begin to experience sensory challenges in any of his/her classes so that the process of targeting the sensitivity, selecting an intervention, and trying it out in action, can begin again.

Application

While this guidebook was created based on a specific school setting, it can be adapted and applied to be functional with a wider range of ages and school settings. The intended setting is for a middle school, grades 5-8, in a general education classroom with students who have sensory processing challenges (either comorbid with ADHD and ASD, or just sensory challenges). Additionally, the school that inspired this question has a strict behavior policy that has expectations like students sitting still in each class, raising their hands to be called on, staying silent in the hallways, and walking in lines between classes. Behavior expectations are not changed based on an individual student's needs, however teachers are given freedom to support students in their classroom as long as they can prove that it is helping the student. Matty and Jonah were both strong candidates for the support that this guidebook could provide because they were beginning to be frustrated with their daily school experience due to the amount of negative attention they were receiving for behaviors that were likely caused by sensory challenges. This guidebook was intended to be used by a learning specialist to help support teachers who work with students like Matty and Jonah, and to support the students in advocating for their needs.

However, this guidebook could be applied to an ICT classroom setting that has students that have sensory processing challenges in it, or in an elementary school classroom with younger students. If the guidebook was going to be used in an ICT classroom I would make the following suggestions and adaptations to the guidebook. First, I would recommend that the student's special education teacher in homeroom

conducts the one on one sessions with the student as outlined in the guidebook rather than the learning specialist. A special education teacher will have enough background on sensory processing, ASD, and ADHD to be able to use the materials provided for each session, and it will be valuable for the student to go through the sessions with their teacher who sees them each day in the classroom rather than an outside specialist. Additionally, the homeroom special education teacher may be able to conduct some of the sessions during the daily homeroom period rather than removing the student from any classes throughout the day. A learning specialist should still be a part of the student support team in order to assist with communication between the special education teacher and any other teachers, specifically if changes need to be made within the classroom's physical environment in order to support the student's sensory needs. If the special education teacher were to conduct the sessions with the student, they would be able to follow the sessions as outlined in the guidebook. It would be important for the special education teacher to communicate with his/her co-teacher about the time demands that will be required of him/her to work with the student on a weekly basis. One way of doing this is to make sure that the general education teacher can come to the weekly student support team meeting. This will also ensure that the general education teacher is informed of the student's sensory needs and is able to be a part of the interventions and supports that are put in place in the classroom.

If this guidebook was going to be used in an elementary school classroom where students are mostly staying in one homeroom throughout the day, I would suggest that the learning specialist or special education teacher who assumed the role of student

advisor would set up a sensory corner of the classroom. In a middle school setting, it can be challenging to set up a sensory corner or sensory room due to the students moving from room to room throughout the day. However, in an elementary school classroom having an area of the room that is dedicated to sensory toys and tools is fairly easy to set up and can be beneficial to multiple students in the classroom. For more information about specific toys and tools to put in a sensory corner, refer to Moyes' (2010, pp. 92-94) book, *Building Sensory Friendly Classrooms* for a list of items to reduce sensory input and increase sensory input. Teachers should create designated times for students to visit the sensory corner each day so that it serves more as a proactive regulatory tool rather than a reactive tool to use when students begin to show discomfort. They can add "sensory corner" or a picture that symbolizes the sensory corner on the student's schedule of interventions as shown in the guidebook. It is important that the sensory room is not used as a time out room and it "does not become associated with problematic behavior" because then when a student is beginning to show signs of agitation they will feel like being asked to go to the sensory room is more of a punishment than something to help them (Moyes, 2010, p. 87). The sensory corner in a classroom is beneficial because the student does not have to leave the classroom community to use it, and it can be introduced as an area that many of the students in the class can use throughout the year as needed as a way to prevent the student who needs it from feeling stigmatized or singled out. The teachers should work with the occupational therapist to set up a sensory corner or sensory room within the school because they are likely to have suggestions for tools and strategies that work and what doesn't work.

One other aspect that I would change if this guidebook was to be applied in an elementary school setting is the student journal entries as seen in session 3 and session 4 of the guidebook. They should be adapted to require less independent writing for the student so that the student doesn't feel stressed or burdened by the journal entries. One way to adapt them is for the student advisor to provide images for the student to choose from to show what makes them feel uncomfortable throughout the day. Refer to Mucklow's (2009, pp. 156-161) book, *The Sensory Team Handbook* for pictures that show different activities that have to do with each sense. Additionally, instead of the student recording each intervention they used throughout the day and how it felt, the student advisor could verbally ask the student what went well with the intervention and what didn't go well during transition times throughout the day, and record it as they are sharing. The important part is that the student feels like they are able to reflect on the interventions that are used and that his/her voice remains at the center of the intervention process.

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