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Examining the Novel "The Curious Incident of the Dog in the Night-Time" Using a Narrative Inquiry Analysis: How do Sensory Behaviors Impact Adolescents?

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Examining the novel *The Curious Incident of the Dog in the Night-Time* using a narrative inquiry analysis: How do sensory behaviors impact adolescents?

By

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Abstract

This project seeks to understand how sensory processing disorder (SPD) impacts a teenager in the novel *The Curious Incident of the Dog in the Night-Time* by Mark Haddon. The book tells the story of a young teenage boy named Christopher who goes on a quest to solve the murder of his neighbor's dog. Although the novel is a work of fiction, the main character is based off of the author's experiences working with children who have diagnoses such as SPD and autism spectrum disorder (ASD). Christopher experiences sensory processing difficulties, and his account of his local neighborhood mystery is not only an investigation, but also insight into the nature of SPD. A qualitative, narrative inquiry analysis approach provides insight into Christopher's sensory experiences as an adolescent. Narrative analysis helps to understand the personal, social, and cultural experiences through story telling (Cohen & Crabtree, 2006). It is a valuable tool to gain internal thoughts, emotions, and perspectives from a person who experiences sensory patterns and sensory dysfunction first hand. Coding strategies were used to identify themes throughout the novel. This approach utilizes a unique perspective for gathering sensory data, as compared to the typical assessments and observation skills that clinicians, specifically occupational therapists, use to guide intervention. Coding techniques used to analyze the novel allow for increased awareness of the unique needs of adolescents with sensory difficulties. Mark Haddon's work is a beneficial read for clinicians, caregivers, and interested readers alike.

Introduction

Typically, children are diagnosed with SPD at a young age when many resources are available for and provided to parents and families. However, SPD is a lifelong condition that impacts every day activities and occupational function with implications across the lifespan. Due to the lack of resources for teenagers who are living with SPD, the proposed research will examine how the teenage years are impacted by SPD by using a narrative analysis to the novel, *The Curious Incident of the Dog in the Night-Time* by Mark Haddon.

Researching SPD is critical because there will always be a need for knowledge of the impact of SPD within the Occupational Therapy scope of practice. In addition, many people who have SPD are growing into adolescents and young adults. Adolescents is a time for emotional, physical, and cognitive development. Many of the cognitive changes teenagers experience contribute to their reactions to sensory stimuli and the coping strategies they used to handle sensory difficulties within their environment. It is critical to have resources and education for those living with SPD across multiple stages of life, including adolescence.

Literature Review

Sensory Processing and Sensory Integration

Sensory integration refers to the “neural organization of sensory information for functional behavior” (Case-Smith & O’Brien, 2010, p. 325). Another author defines sensory integration as, “the neurological process that organizes sensory information from the body to allow it to function effectively within its environment” (Auer, 2006). When someone has a lack of neural organization, they have a difficult time analyzing, connecting, and integrating sensory messages (Kranowitz, 1998). Sensory input is necessary for proper brain function and a proper sensory diet will aid with success in everyday activities (Case-Smith & O’Brien, 2010). A. Jean

Ayres, Ph.D. and occupational therapist, first described inefficient neurological processing in the 1950s, leading the way for occupational therapists to identify and treat sensory problems.

Because of this, occupational therapists use sensory integration as a frame of reference in order to plan intervention for people with sensory processing issues.

Sensory processing is the effectiveness of integrating the body's sensory systems (Case-Smith & O'Brien, 2010). When there is disintegration in the sensory systems, processing and modulation abilities are impacted. This problem also impairs skills and learning, and results in inappropriate sensory responses to the environment (Case-Smith & O'Brien, 2010). For the purposes of this research project, sensory processing and sensory integration will be used interchangeably to refer to abnormal sensory related patterns and responses.

Sensory Processing Disorder

SPD is a collection of disorders related to the way in which the brain processes and interprets sensory information (Cosbey, Johnston, Dunn, 2010, p. 463). The senses involved include tactile (touch), vestibular (balance and spatial orientation), proprioception (sense of body positioning and movement), visual (see), auditory (hear), olfactory (smell), and gustatory (taste). Three main explanations for the cause of SPD include hereditary (people whose parents both have SPD have the highest prevalence of SPD), prenatal conditions and birth trauma (such as induced labor, cesarean section, prolonged labor, jaundice and more), and environmental factors (such as abuse and post-traumatic stress disorder) (Miller, 2006).

Sensory processing patterns are critical to the development of functional participation in daily life, as much of what is learned in childhood is learned through the body's senses (Auer, 2006). Not only does SPD affect sensory systems, it also impacts skills such as motor planning, coordination, posture, muscle tone, and balance. People with SPD may be over-responsive or

under-responsive to sensory information and misinterpret sensory signals that are affecting their body. Over-responsiveness is an overwhelming and overstimulating reaction for the person and under-responsiveness causes a person to seek sensory stimulation within their environment.

There are many types of intervention for sensory concerns. There are six guiding principles from Ayres Sensory Integration Theory. The first is that sensory input can be used systematically to elicit adaptive response (Case-Smith & O'Brien, 2010). The second principle states that meaningful input is necessary before an adaptive response will begin (Case-Smith & O'Brien, 2010). Next, the third principle states that an adaptive response contributes to one's development of sensory integration (Case-Smith & O'Brien, 2010). The fourth principle declares that organizing adaptive response enhances behavior (Case-Smith & O'Brien, 2010). Ayre's fifth principle states that mature and complex behaviors involve consolidations of more primitive behaviors (Case-Smith & O'Brien, 2010). Lastly, the sixth principle describes how meaningful activities increase the potential for neural organization (Case-Smith & O'Brien, 2010). The principles developed by Ayres drive the intervention behind the sensory integration theory for intervention. Additionally, Ayres believed that neural systems that impair function are remediable in childhood, and that occupational therapy will improve sensory integration dysfunction due to the plasticity of the nervous system (Case-Smith & O'Brien, 2010, p. 356). Other key points to sensory integration intervention include active participation, initiating the inner drive of the child, and finding the "just right challenge" within the environment (Case-Smith & O'Brien, 2010). Many of the intervention techniques mentioned next are examples of therapy within a play setting, as children are most willing to participate if the activity is enjoyable and distracts them from the difficulty of the task. It is important to consider the

individual client when developing intervention ideas. The ideas listed below can be graded and adapted for different populations and age groups.

When the senses in the body are not responding properly, tactile dysfunction can occur and cause people to be over-sensitive or under-sensitive to touch sensations. This concept is demonstrated when a person is bothered by clothing or prefers only certain clothing types, dislikes bathing, brushing teeth, and/or getting a haircut. The person may also constantly touch people and objects and invade personal space. Additionally, they may have trouble buttoning or zipping clothes, and using tools such as pencils and utensils (Kranowitz, 2003). Interventions for tactile dysfunction include playing with shaving cream, putty, dry pasta, sand, or playdough, making hand and footprints using cornstarch, pudding, paint, etc., building tactile obstacle course, and engaging in dress up games (Kranowitz, 2003).

The vestibular sense is often impacted by abnormal sensory responses. Depending on whether the child is under-responsive or over-responsive to the environment will impact their symptoms, but could include problems such as avoiding physical movement, feeling seasick or carsick, disliking playground equipment, or being a thrill seeker and moving constantly but with poor balance, low muscle tone, and constant fidgeting. Depending on the degree and sensory threshold activities such as jumping on a trampoline, swinging on vestibular equipment and/or sitting on T-stools could be beneficial (Kranowitz, 2003).

Proprioception is another major area that is influenced by sensory processing and integration problems. Proprioception difficulties include body positioning problems such as, poor body awareness, poor balance, difficulty with unfamiliar and complex motions, chewing and fidgeting with clothes, and initiating body feedback (such as cracking knuckles or stretching limbs) (Kranowitz, 2003). There are many intervention activities for proprioceptive senses.

Having a space for a crash pad is helpful, making a cardboard box fort or fabric tube/tunnel, and performing heavy work are just some of the ideas (Kranowitz, 2003).

Visual sensitivities could include confusing left and right, misjudging spatial relations (which causes tripping or falling), difficulty tracking a moving object, and fatiguing easily in school (Kranowitz, 2003). Playing a fishing game (using magnets), flashlight tag, watering plants, and more may be helpful occupational therapy intervention ideas for in the clinic or at home (Kranowitz, 2003).

Auditory sensitivity could present as inattention or distraction by other sounds, distress due to loud or high pitched noise, and difficulty reading aloud (Kranowitz, 2003). Involving musical instruments so that the person is in control is beneficial to reducing noise sensitivity. Playing music, using rhymes, and clapping/tapping to music or sounds may also decrease auditory sensitivities over time (Kranowitz, 2003).

Olfactory and gustatory sense may also be affected by SPD. Picky eating, sensitivity to smells, and licking and tasting inedible objects may be signs of olfactory and gustatory sensitivities (Kranowitz, 2003). Intervention ideas include scented markers, scratch and sniff stickers, and games that guess foods based on their smell or taste (Kranowitz, 2003).

If a person has oral-motor sensitivities, it might contribute to feeding and eating problems, like gagging, drooling, and digestion problems, as well as diet and food choices (Kranowitz, 2003). A few intervention ideas for oral motor skills include imitating faces in a mirror, blowing through straws to move items in a game, blowing bubbles, making edible jewelry, (such as necklaces) and slowly introducing new foods with varying textures, colors, and smells (Kranowitz, 2003).

Motor planning are difficulties are present when a person has difficulty positioning the body when dressing, has poor gross motor skills for running, jumping, etc., has poor eye-hand

coordination, and frequently falls and trips (Kranowitz, 2003). Ideas for intervention techniques include obstacle courses, practicing dressing, and sports such as balloon volleyball and catch (Kranowitz, 2003).

Fine motor skills are often compromised when a child is unable to effectively process touch and movement sensations. This may be manifested by poor handwriting, messy eating, and avoiding school work could all be signs of fine motor skill deficits. Intervention ideas include clothespin and pincher activities, games like Operation, squirt bottles for a water game (homemade from ketchup bottles), and handwriting programs (Kranowitz, 2003).

Sensory self-regulation is essential across multiple areas of life including at a therapy clinic, at school, at home, and in the community. Waite (2013) discusses the ways occupational therapists are treating sensory-related conditions in order to increase self-regulation across these areas to establish consistency and to examine the extent of which the environment plays a role in the sensory behaviors. Juarez et al. (2014), also discusses the multisensory atmosphere of community outings, such as restaurants and dealing with sensory sensitivities in such establishments. There are many sensory related barriers to eating, including general concerns such as food refusal, aversion to food characteristics, and a limited diet

Research has shown that many people with ASD, attention-deficit/hyperactivity disorder (ADHD), Tourette's syndrome, obsessive compulsive disorder (OCD), Fragile X syndrome, and other neurological conditions commonly have sensory processing issues. Additionally, SPD is also frequently misdiagnosed as ADHD (Auer, 2006). There are common behaviors seen between the two diagnoses, including impulsiveness, extraordinarily active, disorganized, impatient, lack of self-control, and appearing disinterested or unfocused (Miller, 2006). In 2006, Lucy Jane Miller, a therapist promoting sensory processing framework, presented four of the

possible relationships between SPD and ADHD. These possible relationships include: a.) SPD and ADHD are distinct diagnoses with no overlap b.) They are the same diagnoses c.) They are different disorders but do overlap and d.) One disorder is a variation or subset of the other (Miller, 2006). In a nationwide study, Miller and colleagues came to the conclusion that 7.5% of children in the general population had symptoms of either SPD or ADHD, or both disorders (Miller, 2006). Additionally, one third of the test population had only symptoms of SPD, and one third only had symptoms of SPD (Miller, 2006). However, 40% of children had distinct symptoms of both disorders. In a follow up study, 60% of children had symptoms of both ADHD and SPD, but only 20% had only SPD symptoms and an additional 20% had only symptoms of ADHD (Miller, 2006). This data revealed to Miller and her team that ADHD and SPD are separate diagnoses. Their results stressed the importance of a correct diagnoses so that people are not unnecessarily medicated and for the greatest success for intervention (Miller, 2006).

One of the reasons behind the many comorbid diagnoses or incorrect diagnoses is because the diagnosis is often made based on observation of behavior by clinicians or information that is reported by parents, and based on the classifications in the diagnostic and statistical manual (Miller, 2006). Another complication is that there are no physiological tests that can prove someone has SPD, ASD, or ADHD.

Besides Lucy Jane Miller, other leaders in Sensory Integration research include A. Jean Ayres and Zoe Mailloux. Both Ayres and Mailloux coauthored *Love, Jean*, a personal narrative of Ayre's nephew, Philip Erwin. The book shares their letters of his diagnosis of sensory integration dysfunction and Ayre's suggestions for his sensory problems. Philip's stories and letters give a glimpse into the consequences of living with sensory integration dysfunction in the teenage years. Other well-known literature for Sensory Integration were authored by Kranowitz.

These include *The out-of-sync child: Recognizing and coping with sensory integration dysfunction* (1998) and *The out of sync child has fun: Activities for kids with sensory integration dysfunction* (2003). Kranowitz's books became best-selling, revolutionizing resources for parents who have children with sensory integration dysfunction. The books include checklists of sensory integration dysfunction symptoms, a general description of the diagnosis, examples of children with Sensory Integration problems, and other information generally geared toward parents and caregivers. Additionally, *The out-of-sync child: Recognizing and coping with sensory integration dysfunction* is categorized by common areas of difficulty for those with sensory integration dysfunction, including tactile, vestibular, and proprioceptive dysfunctions (Kranowitz, 1998). Kranowitz's second book, *The out of sync child has fun: Activities for kids with sensory integration dysfunction* is a companion resource. This reference reviews what activities to do at home with a child with sensory integration dysfunction. The activities are related to the sensory systems, as well as activities to improve sensory related skills such as oral motor, motor planning, fine motor, and bilateral coordination (Kranowitz, 2003).

Types of sensory processing disorder. There are three subtypes of SPD. These subtypes include: Sensory Modulation Disorder, Sensory Discrimination Disorder, and Sensory-Based Motor Disorder (Miller, 2004). Sensory Modulation refers to central nervous system's ability to regulate sensory responses that are appropriate to the sensory stimulus (Case-Smith & O'Brien, 2010). People who experience sensory modulation difficulties are either hyper-responsive or hypo-responsive to the sensory information. Hyper-responsiveness is an over-responsiveness and defensiveness to the sensation, while hypo-responsiveness is a minimal or slow reaction to the stimulus (Case-Smith & O'Brien, 2010). If a child is over-responsive to sensory input, they are considered to be sensory avoidant. People who are "sensory avoiders" often cover their ears,

avoid touch, over-respond to pain, and exhaust easily (Auer, 2006). If an individual is under-responsive to sensory stimuli, they are considered to be sensory-seeking. People who are under-responsive will exhibit behaviors such as rough housing and wrestling, excessive movement like swinging and rolling, chewing and biting objects like clothes and tooth brush, going barefoot, falling often, taking risks, and a decreased response to pain (Auer, 2006). However, fluctuation on the responsiveness continuum is common throughout the day. Next, Sensory Discrimination Disorder is a difficulty in interpreting information in various sense including tactile, proprioceptive, vestibular, auditory, visual, and olfactory/gustatory (Miller, 2012). Finally, sensory-Based Motor Disorder has two additional subtypes, described as Postural Disorder and Dyspraxia. Postural disorder affects postural stability, muscle tone and balance (Case-Smith & O'Brien, 2010). Dyspraxia is a problem with praxis, which is, “the ability to conceptualize, plan, and execute a non-habitual motor act” (Case-Smith & O'Brien, 2010, p. 349). Dyspraxia causes difficulties in planning and coordinating physical movement, as well as difficulties with balance and posture (Case-Smith & O'Brien, 2010). These three sub-categories are often treated with occupational therapy intervention.

Diagnostic information. Currently, the world of diagnostics related to SPD is debatable and ever-changing. SPD was not included in the fourth edition of Diagnostic and Statistical Manual (DSM-IV) as an official diagnosis, rather as a “condition proposed by outside sources” (Rita, n.d.). There are professionals who doubt the diagnosis because SPD did not get selected for the fifth edition of the Diagnostic Statistical Manual. From an occupational therapy standpoint, this is frustrating as the profession has been treating sensory integration and processing problems since the 1970s (Wallis, 2007).

Additionally, Wallis speaks on the everyday difficulties that are not related to the actual condition of SPD itself, but are found in the hesitation of doctors to recognize SPD, teachers' unwillingness to cooperate, and insurance companies who deny services. One of the major implications of SPD being withheld from the DSM is that the DSM is used for insurance purposes as well as research and treatments for it (Rita, n.d.). In order to have a specific diagnosis of SPD (also referred to as sensory integration dysfunction), sensory processing problems must be pervasive and interfere with daily activity (Auer, 2006). Typically, parents observe signs and symptoms, possibly use take home "checklists" provided in books such as Kranowitz's, or assessment results such as The Sensory Profile (Rita, n.d.). Often times, the parents will bring these results to the pediatrician, who recommends occupational therapy referral (Rita, n.d.). They might also recommend seeing a neurologist or developmental specialist to rule out other diagnoses (Rita, n.d.). Depending on careful occupational therapy documentation and insurance coding process, SPD will be covered under Medicaid and many 3rd party insurance providers (Rita, n.d.).

Interviews, questionnaires, and medical, sensory, and social histories are valuable evaluation tools that are completed by parents, teachers, or physicians. Ayres developed sensory histories, which were unpublished questionnaires from the 1960s (Case Smith & O'Brien, 2010). Using a Likert-scale, these sensory histories were the foundation for assessments such as the Sensory Processing Measure and the Sensory Profile (Glennon, Miller-Kuhaneck, & Herzberg, 2011). The Sensory Processing Measure helps to identify problems in the home and the school setting. The assessment is usually completed by a parent or teacher, and can even be used for early intervention.

The Sensory Profile has three versions- infants and toddlers, children in early and middle childhood, and for adolescents and adults (Case-Smith and O'Brien, 2010). There is also a school version, the Sensory Profile School Companion, for teachers to report on the sensory behavior at school (Case-Smith and O'Brien, 2010). The Sensory Processing Measure has two forms entitled "Home" and the "Main Classroom" to help teachers, caregivers, and therapists to determine if the context makes a difference with their sensory behavior (Case-Smith & O'Brien, 2010).

Other assessments include the Touch Inventory for Elementary School-Aged Children (TIE), which evaluates tactile defensiveness (Case-Smith & O'Brien, 2010). Also, the Sensory Integration and Praxis Tests (SIPT) Protocol was born from Ayres assessments in the 1960s, and provides an in depth evaluation of sensory integration (Case-Smith & O'Brien). It has 17 tests and measures tactile, vestibular, proprioception, form and space perception, visuomotor coordination, bilateral integration, sequencing, and praxis. The SIPT is standardized and administered with a procedure and requires formal training to administer. In addition to the Sensory Profile, the Miller Function and Participation Scales, the School Function Assessment, the Sensory Professing Measure, and the Social Participation Scale also have useful results for establishing sensory processing patterns in children (Case-Smith and O'Brien, 2010).

Autism Spectrum Disorder

Throughout the book, the author implies that Christopher may also have an ASD diagnosis. Information of ASD is included in the literature review to better understand the possible relationships between ASD and SPD, but the impacts of SPD were only evaluate in this study's results.

ASD is considered to be a spectrum disorder, due to the wide range of abilities people with the diagnosis have. Three common behaviors that signal an ASD diagnosis include: difficulties with social relationships, difficulties in communication, and obsessive or inappropriate attachment to objects or rituals (Sicile-Kira, 2006). Additional concerns when someone has ASD include sensory processing difficulties, motor skill issues, and behavioral problems.

One study by Dunn, Myles, & Orr in 2002 identified whether or not children with Asperger syndrome (now classified under the ASD spectrum) had different sensory processing patterns compared to peers without disabilities (Dunn, Myles, Orr, 2002). Under the DSM-IV, Asperger syndrome criteria include: social impairment, repetitive and restrictive stereotyped patterns of behavior, and decreased social function. Forty-two children ages 8 to 14 with Asperger syndrome completed the Sensory Profile (Dunn, 1999). Their responses were compared to 42 children without disabilities. Results of this study included, “the score patterns suggest that children with Asperger syndrome in this study may have poor sensory modulation... and they demonstrated different patterns of sensory processing as compared to their peers...”, thus suggesting that sensory processing patterns are present with ASD (Dunn, Myles, Orr, 2002).

Diagnostic Information. Prior to 2013, the diagnostic and statistical manual of mental disorders IV (DSM-IV) was used. There were four areas of the disorder, including autistic disorder, Asperger’s disorder, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PPD-NOS) (American Psychiatric Association, 2013). When the DSM-V came out, ASD became an umbrella term with no separate diagnoses. The ASD categories have been removed from the DSM-V. Because of the umbrella concept, clinicians

may find it easier to account for the varying symptoms, abilities and behaviors (American Psychiatric Association, 2013). This may be frustrating for many people who identify with the diagnosis of Asperger syndrome or another previous category of ASD. Dunn, Myles, Orr (2002) describes Hans Asperger's 1944 study of a social disability syndrome. Asperger concluded five traits about the children in his study: social isolation and awkwardness, self-stimulatory responses, insistence on environmental sameness, normal intellectual development, and normal communication development (Dunn, Myles, & Orr 2002). Additionally, he observed hypo-sensitivities and hyper-sensitivities to different stimuli including taste, tactile, and auditory stimuli, which may be related to SPD (Dunn, Myles, & Orr 2002). Asperger's other observations included a lack of understanding of personal space. The American Psychiatric Association also states that an October 2012 study found, "DSM-5 criteria identified 91 percent of children with clinical DSM-IV PDD diagnoses, suggesting that most children with DSM-IV PPD diagnoses will retain their diagnosis of ASD using the new criteria." This fact is beneficial for parents to hear as their child might qualify for certain programs or therapies based on their diagnosis.

Physicians or psychologists often make a medical diagnosis for people with ASD based on the DSM-IV criteria. Medical histories, as well as developmental and behavioral histories are crucial for the diagnosis. Hearing and vision tests might also be appropriate. Characteristics often tested in assessments and observed in interviews include eye gaze, orienting to name, showing interest, communication, language development, and more (American-Speech-Hearing-Language Association, 2016). Various assessment tools are utilized, including the Modified Checklist for Autism in Toddlers-Revised (M-CHAT-R General Information, 2009). M-CHAT-R is a screening tool that assesses the risk of ASD in children between 16 and 30 months of age. Founding developers of the M-CHAT-R include neuropsychologists Diana Robins and Deborah

Fein, as well as clinical psychologist Marianne Barton (m-chat.org). Also, the Childhood Autism Rating Scale (CARS) is an observational tool for children who are older than 2 years old and to identify if they have mild, moderate or severe autism (Case-Smith & O'Brien, 2010). Another tool includes the Gilliam Autism Rating Scale (GARS). GARS identifies the presence and severity of autism (Gilliam Autism Rating Scale Third Edition, 2016).

Relationship Between Sensory Processing Disorder and Autism Spectrum Disorder

There is an interrelated relationship between SPD and ASD, with many people who have ASD also having SPD as a co-occurring diagnosis. However, either diagnosis can stand alone. In 2007, Baker, Lane, Angley, and Young (2007) reported that sensory difficulties have been reported in as many as 95% of children with ASD. Dunn, Myles, and Orr (2002), identified sensory processing patterns in those with Asperger syndrome and compared them to typically developing peers using the Sensory Profile. Through the comparison, researchers found significant differences in 22 out of 23 sensory items on the profile. Results of Baker, Lane, Angley, & Young (research indicates the presence of specific sensory processing patterns. Researchers also discovered patterns between sensory processing and the social, emotional, and behavioral functions in people with ASD. Then, in 2013, researchers found a positive correlation between the number of autistic traits and the frequency of sensory processing problems in the general population (Robertson & Simmons, 2013).

Reynolds and Lane (2009) examined the relationships between Sensory Over-Responsiveness (SOR), Anxiety, and Attention Deficit Hyperactivity Disorder (ADHD). Approximately 25% of children with ADHD have comorbidities that often include ASD and SOR (Reynolds & Lane, 2009, p. 433).⁴⁸ Participants between 6 and 10 years old, which included 24 children without ADHD or SOR as well as twenty four children with ADHD. The

study's conclusions included the information that 62% of children in the ADHD group tested as SOR, while 54% had auditory over-responsivity (Reynolds & Lane, 2009, p. 436). Children with ADHD had statistically significantly higher levels of anxiety. Finally, another conclusion was that children with both SOR and ADHD were more anxious than children with or without ADHD and without SOR (Reynolds & Lane, 2009).

Auditory system has long been a crucial part of sensory integrative process, and people who have SPD and/or ASD often struggle with filtering auditory stimuli (May-Benson, Carley, Szklut, Schoen, 2013). Auditory issues in children with SPD include a lack of arousal and attention, auditory and somatosensory sensitivities, as well as balance and coordination symptoms, (May-Benson, Carley, Szklut, & Schoen, 2013). People who have an ASD diagnosis often also have auditory sensitivity. These sensitivities include over-responsivity, arousal and sleep difficulties, decreased attention, as well as motor planning problems. Oftentimes, people with auditory sensitivities are fearful or distracted by noise, and will hold their hands over their ears. Using different frequencies of sound and different sound therapy programs could improve the lives of children with diagnoses such as ASD and SPD. Researcher Kuypers (2013) also mentions that emotional regulation and executive functioning (thoughts and actions) are critical for self-regulation. Kuypers (2013) also states that self-regulation deficits impede performance and daily activity for people with diagnoses such as ASD and SPD.

One of the most challenging areas of research is finding studies related to adolescents and young adults with SPD. There is little information about the specific implications of teenagers who have SPD; however, research on Sensory Integration Theory, SPD, ASD, and associated conditions is common, and can in some cases be extrapolated and applied to adolescents, young adults, and/or adults. In 2010, Cosbey, Johnston, and Dunn look at the importance of

participation in social aspects of a child's everyday life. For children, participating in meaningful life activities helps to, "Develop an understanding of social rules and the cognitive and physical skills needed for development," (Cosbey, Johnston, Dunn, 2010, p. 462). One meaningful life experience is social relationships and social participation. Cosbey, Johnston, and Dunn state that socialization helps children share, comfort each other, help one another, cooperate, manage conflicts, and finally, helps to learn about adult life (Cosbey, Johnston, Dunn, 2010).

Additionally, social competence improves peer interactions, increases school performance, and results in increased adulthood success (Cosbey, Johnston, Dunn, 2010). Social isolation is often a result of disability. The article studied 12 children (ages 6-9) with SPD and compared them to 12 typically developing peers in regards to their social participation patterns. The Short Sensory Profile was used to evaluate for SPD, and the Children's Assessment of Participation and Enjoyment were used to test the children's social participation patterns (Cosbey, Johnston, Dunn, 2010, p. 464-465). The researchers concluded that there are two statistically significant differences between children with SPD and their peers. These differences are found in the areas of "intensity" of the activity and "with whom." There were also statistically significant differences in overall enjoyment of activities when the two groups were compared, with children with SPD enjoying the activities more than their peers without SPD (Cosbey, Johnston, Dunn, 2010). Additionally, children may struggle with self-confidence, self-esteem, engagement in social participation, and family life when dealing with sensory problems across childhood (Case-Smith, 2010).

The ultimate difficulty in regards to the topic of SPD and ASD and their effect on teenagers and young adults is that there are fewer resources and insight into the lives of teenagers who are living with SPD. The lack of information for teenagers is the reason for studying a

narrative analysis as a learning tool to experience SPD through the eyes of an adolescent. Because most of the assessment tools used to diagnose SPD and ASD are external to the client (meaning that they are completed by a physician, a teacher, or a parent, etc.), it is beneficial to use a narrative analysis to learn about a teenager who has SPD in order to gain internal insight into the implications of this diagnosis as a child ages. Overall, the purpose of this research is to identify how the daily life of adolescents is impacted by sensory processing difficulties by using a narrative inquiry analysis and the popular fiction book, *The Curious Incident of the Dog in the Night-Time*.

Methodology

The next step for this project is to examine the novel using narrative inquiry analysis and coding strategies for information and patterns in teenagers who live with SPD. The information gained from this project is useful for individuals with SPD and their families. Because the novel is a descriptive account of someone with SPD, it is beneficial to analyze their experiences to better understand the diagnoses. Research questions were identified as outcome results for this qualitative narrative inquiry analysis.

- How does Mark Haddon represent sensory processing disorder in the book, *The Curious Incident of the Dog in the Night-Time*?
- What is daily life like with sensory processing disorder?
- How does sensory processing disorder impact adolescents specifically?

The overall process that was used to answer the research questions for this project was a narrative inquiry analysis. Narrative stories describe experiences and events, and researchers have come to realize that personal, social, and cultural experiences are constructed through the sharing of stories (Cohen & Crabtree, 2006). In the medical field, narrative analysis is often used

to learn about a patient's experience with a disability or illness. The use of a narrative inquiry analysis of the book *The Curious Incident of the Dog in the Night-Time* is geared towards understanding what adolescents with SPD experience on a day-to-day basis.

In order to identify the themes in the book, a coding system by the author Johnny Saldana was used. Three chapters were examined in the process of learning a coding process, including "Chapter 1: An Introduction to Codes and Coding", "Chapter 4: Thematic Coding and Categorizing," and "Chapter 5: Analyzing Biographies and Narratives" from the book, *The Coding Manual for Qualitative Researchers* (Saldana, 2013). In order to develop themes, the novel was read multiple times, and identified quotes and sections of the book that helped to answer the research questions that were identified. This information on the themes was organized in a spreadsheet to keep track of all of the quotes from the book. Then, Saldana's method was utilized and the results of the research was developed into eight different themes. From there, the themes were organized into three distinct themes with sub themes for each.

Results

After the novel was coded, three themes were identified as major results of the literature analysis. The first theme centers on Christopher overcoming his sensory processing difficulties using familiar and logical thoughts. The theme demonstrates how Christopher has a difficult time understanding jokes, colloquial phrases, idioms, etc. as his thoughts are literal and logical. The book demonstrates a few times where Christopher can understand that there are implications for his actions (such as throwing away his train ticket because it is yellow). A more mature thinking process involving foresight and implications appears to come with the maturation that adolescents experience. Please reference Table 1 for more information on theme 1.

The second theme concentrates on Christopher's cognitive processes that have developed as a teenager. He is aware that his thought processes and reactions are different than his peers, and he has developed more socially appropriate reactions to his environment. When his environment is too overstimulating, he uses more mature, effective, and socially appropriate coping skills. Examples of such coping skills include deep breathing exercises, counting, and completing math problems. As a teenager, Christopher is maturing and is able to implement more advanced and age appropriate coping strategies into his everyday life. Please reference Table 2 for more information on theme 2.

The third theme concentrates on Christopher's sensory sensitivities, particularly with auditory, visual, and olfactory hypersensitivities and proprioceptive hypo-sensitivities. Additionally, this theme discusses the application of the theme to the American Occupational Therapy Association's practice framework. Through the coding process, as well as analyzing Christopher's sensory experiences, multiple areas of occupational performance were identified as difficult for Christopher. The framework provides a structure for identifying activities of daily living (ADL) and instrumental activities of daily living (IADL) that impact Christopher's daily routine. Please reference Table 3 for more information on theme 3.

All three themes was represented by a table (See tables 1,2,3), which summarizes each theme, identifies sub themes, provides supporting quotes from the text, defines and describes terminology, and discusses clinical insight. The clinical insight is directed at occupational therapy practitioners. Figure 1 uses a visual aid to further emphasize the interrelatedness of the themes.

Discussion

The book, *The Curious Incident of the Dog in the Night-Time*, enables readers to understand the life of an adolescent with SPD. Overall, the literature review research concluded that there is a lack of research studies regarding teenagers with SPD. Additionally, there are limited resources for adolescents and their families to access; rather most of the resources are directed at young children and their parents or caregivers.

A critique of this research was that the book was a work of fiction. While it was accurately portrayed and based upon true experiences, it was only one author's opinion of life with SPD and associated diagnoses. Since it was implied that Christopher might also be on the autism spectrum, having a dual-diagnosis could have made it difficult to separate symptoms of SPD and symptoms of ASD. While the researcher tried to look at the sensory aspects only, Christopher's actions and behaviors may have been influenced by another diagnosis.

Future studies could benefit from comparing multiple novels involving adolescents with special needs and using themes to better understand the implications for occupational therapy intervention. Another study could perhaps observe and interview adolescents with sensory processing disorder and try to gather their personal experiences. Other popular novels would be applicable to study using narrative inquiry analysis. Some possible novels include *Too Loud, Too Bright, Too Fast, Too Tight*, a novel by Dr. Sharon Heller. Dr. Heller experiences sensory defensiveness in her daily life, and throughout the book shares personal sensory experiences while also educating the reader and offering suggestions to those with sensory difficulties.

Another novel that could be studied is *Carly's Voice: Breaking Through Autism* (2012), by Arthur Fleischmann with Carly Fleischmann. Carly was diagnosed with autism at a young age. Even though Carly does not speak, she has developed the ability to communicate through typing. Her dad authored a book about their experiences and Carly contributed as well. While the

book might not be an ideal comparison project as her dad is a primary author, reading Carly's insight provides very meaningful information directly from someone with SPD and ASD.

Additionally, Tom Fields-Meyer wrote a novel *Following Ezra: What One Father Learned About Gumby, Otters, Autism, and Love from His Extraordinary Son* (2011). Ezra also has ASD and SPD, and the book describes the experiences he and his family face in dealing with his diagnosis. The book describes him during his childhood and early teenage years as well. One similarity between Ezra and Christopher includes their awareness that their thought processes are different. During Ezra's early stages of adolescence, Ezra's mom reported that "Ezra seems to be more aware of himself than before...he is able to perceive himself in a larger context, in relation to other people" (Fields-Meyer, 2011, p. 175). Additionally, both boys are exceptionally skilled at memorizing details and facts. This skill helps them to cope with their daily sensory experiences. They also both experience difficulties in areas of occupations due to sensory difficulties and symptoms of their diagnoses. IADLs that are interrupted for both Christopher and Ezra by their sensory sensitivities include shopping, socialization, education and social participation. Also like Christopher, Ezra experiences auditory sensitivity. One point of the book discusses his auditory sensitivity using this example: "Suddenly, without warning, Ezra starts and backs up as if a wild beast has just dropped in his path. He keeps his palms on his ear, looking warily at the [water fountain]" (Fields-Meyer, 2011, p. 42-43). This scenario demonstrated Ezra's hypersensitivity to noise. Some of the signs of auditory sensitivity are fearfulness and covering his ears, both of which Ezra displayed. Unlike Christopher, Ezra experiences increased levels of tactile hypersensitivity. Sensory experiences, such as a haircut overwhelm Ezra. Overall, the themes of both books overlapped as Christopher and Ezra shared many similar sensory experiences.

When generalizing this study's results to all adolescents, it is determined that SPD impacts social engagement and participation, including developing and maintain close relationships with families or friends, and even dating relationships. Additionally, sensory processing difficulties impact educational experiences due to struggles in managing relationships with peers and teachers. While a normal school day has structure and routine, a vocational path later in life may be overwhelming and unfamiliar and would need to be assessed. The auditory and visual experiences that occur when driving are also overwhelming which may impact future community mobility. Both driving and working are large milestones during adolescence and both could be impacted by sensory experiences. In addition, teenagers often struggle with self-identity, but with daily sensory processing difficulties, their self-worth and self-esteem could decrease due to lack of independence, overwhelming and overstimulating sensory stimulation, and the effects of feeling "different" than their peers. Lastly, as people age, hygiene and sexuality concerns arise with body changes during adolescence. It is especially important with sensory sensitives to maintain cleanliness to your body.

An additional source stated concerns specifically for teenager with ASD and SPD. Sicile-Kira (2006), reported concerns that are unique to this age group. These concerns include depression, hygiene, toileting issues, sexuality and masturbation, social skills, and academic progress (Sicile-Kira, 2006). The areas of concern from this study concluded similar areas of occupational dysfunction, including hygiene and toileting issues, sexuality, socialization, and education. Additionally, this book also discusses teenage emotions, sexual and physical changes during adolescence, dating and relationships, and post-graduation transitions. The researcher predicted that these areas would be general concerns for this population as well.

Finally, Mori (2015) also states that sensory processing difficulties in adolescents and young adults will interfere with age-appropriate activities. Many of these concerns include driving, vocational choices, leisure activities, increasing independence, and developing romantic relationships (Mori, 2015). Many of these concepts were similar to those that this research project identified as problems for this population. Occupational therapists can assist teenagers with fostering a sense of identify and becoming successful in these areas of concern.

Conclusion

Overall, the transition from adolescence to young adult is a difficult one. Christopher illustrates in his book that through logical thought processes and coping strategies, developed during adolescence, he can help manage the symptoms of SPD. Despite the success he has in some areas of occupational performance, Christopher still needs assistance with nutrition (part of meal preparation and cleanup), toilet hygiene/toileting, community mobility, social participation, shopping, education, and social participation. These areas of occupational performance can guide occupational therapy intervention in order to better understand the experiences of an adolescent with SPD.

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Table 1

Theme 1 Chart

Theme 1	In times of stress, Christopher can overcome SPD tendencies and behaviors with familiar thoughts that are based in logic, not emotion.
Sub-Themes	<ol style="list-style-type: none"> 1. In times of stress, Christopher can overcome SPD tendencies and behaviors with logic. 2. Christopher's thoughts are driven by logic, not emotion. 3. Christopher has a hard time understanding things that are not literal or logical.
Key Quotes	<ol style="list-style-type: none"> 1. "And I didn't like the ticket being half yellow but I had to keep it because it was my train ticket" (p. 153). 2. "...Because loving someone is helping them when they get into trouble, and looking after them, and telling them the truth, and Father looks after me when I get into trouble, like coming to the police station, and he looks after me by cooking meals for me, and he always tells me the truth which means that he loves me" (p. 87) 3. "If I try to say a joke to myself, making the word mean the three different things at the same time, it is like hearing three different pieces of music at the same time, which is uncomfortable and confusing and not nice like white noise" (p. 8)
Definition/Description	<ol style="list-style-type: none"> 1. Because Christopher is a teenager, he has a more mature reaction to his tendencies related to SPD. In the example, he acknowledges that he does not want to keep his ticket due to its color. He will not eat certain foods due to the color of them, so it is not unusual for him to avoid objects, food, etc. if they are specific colors (especially yellow and brown). However, as a teenager who is able to overcome his SPD symptoms when absolutely required, he will comply.

	<p>2. Many of Christopher's thoughts are not emotional. He does not react appropriately to many emotionally-charged incidents, such as getting arrested (he instead is concerned about police behavior) and his mother being in the hospital (he wants to visit her because he likes hospitals, not because he is concerned about her). For instance, Christopher says, "[Asking father to visit mother in hospital]..." "Can we visit her?" I asked, because I like hospitals. I like the uniforms and the machines," (p. 23).</p> <p>3. Throughout the book, Christopher mentions that he is unable to understand metaphors or jokes. He also cannot read people's emotions well or pick up on subtle things within conversations. He says, "I find people confusing... The first main reason is that people do a lot of talking without using any words. The second main reason is that people often talk using metaphors" (p. 15).</p>
Clinical Insight	<p>1. There are many components of Christopher's SPD that would create a scenario where he would be uncomfortable continuing or initiating an activity. Because his brain is maturing as a teenager, and with age comes experience, Christopher is more willing to "take chances" with certain colors, sounds, and situations in order to be successful.</p> <p>2. Because many of Christopher's relationships lack emotion, he may struggle with social skills. Adolescence is a critical time for making friends, having romantic relationships, maintaining positive relationships with teachers, and continued relationships with parents. All of these relationships are at risk if Christopher does not appropriately express emotion.</p>

	<p>3. Christopher's difficulty with understanding parts of conversations such as jokes could also inhibit relationships and friendships as he is not able to understand what they are saying. At one point in the novel, Christopher mentions disliking his neighbor, Mrs. Sheers, because she uses metaphors and colloquial phrases which he does not understand. Because of this confusion, Christopher becomes upset and it could lead to further disruption of social relationships.</p>
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Table 2

Theme 2 Chart

Theme 2	Christopher recognizes that his brain is different, and he uses many effective coping strategies to overcome SPD related issues.
Sub-Themes	<ol style="list-style-type: none"> 1. Christopher uses many coping strategies to handle SPD tendencies 2. Christopher uses detailed descriptions of the situation and environment to comfort himself. 3. Christopher is aware his brain is different 4. Christopher finds calmness in familiarity 5. Christopher gets anxious in unfamiliar situations
Key Quotes	<ol style="list-style-type: none"> 1. "So I took lots of deep breaths like Siobhan says I have to do if someone hits me at school, and I counted 50 breaths and I concentrated very hard on the numbers and did their cubes as I said them. And that made the hurt less painful" (p. 137). 2. "I couldn't think because there were too many other things in my head, so I did a math problem to make my head clearer" (p. 146). 3. "I went into a field with cows in it and after I'd had a wee I stopped and looked at the field and I noticed these things: 1. There are 19 cows in the field, 15 of which are black and white and 4 of which are brown and white. 2. There is a village in the distance which has 31 visible houses and a church with a square tower and not a spire. 3. There are ridges in the field which means that in medieval times it was what is called a ridge and furrow field and people who lived in the village would have a ridge each to do farming on...7. The cows are mostly facing uphill. And

	<p>there were 31 more things in this list of things I noticed but Siobhan said I didn't need to write them all down" (p. 141-142).</p> <p>4. "And eventually there is no one left in the world except people who don't look at other people's faces and who don't know what these pictures [faces with emotions] mean and these people are all special people like me and. and they like being on their own and I hardly ever see them because...they are very shy and rare" (p. 199).</p> <p>5. "It is permitted to move the chairs and the table in the kitchen because that is different, but it makes me feel dizzy and sick if someone has moved the sofa and chairs around in the living room or the dining room" (p. 47).</p> <p>6. And Siobhan says people go on holidays to see new things and relax, but it wouldn't make me relaxed" (p. 178).</p>
Definition/Description	<ol style="list-style-type: none"> 1. Christopher has learned at school to count or do math problems in his head to help control his overwhelming feelings or his reaction to his sensory environments. He also understand the benefits of breathing and counting before reacting to a situation. He clears his head by concentrating on other things, like solving a math problem. 2. Christopher notices all the details of a scene in an environment. This attention to detail helps him to be more comfortable in strange places and understand the sensory stimulation that he is experiencing. 3. There are many instances in the book where Christopher explains why his brain is unusual, how he thinks in a different way, and how he socializes in a different way. However he also knows that he is very smart and talented.

	<ol style="list-style-type: none"> 4. Christopher feels uncomfortable when things are out of place. When they are, it results in him feeling stressed out and upset. He has to memorize all new details of the environment and adjust to different sensory sensations. 5. Christopher feels stressed out and experiences a lot of sensory input in unfamiliar situations and in new places.
Clinical Insight	<ol style="list-style-type: none"> 1. Due to Christopher's sensory sensitivities, he has learned and implemented coping skills which are more mature than groaning, stimming, or crying when he is upset. Overall, these coping skills positively influence Christopher's concentration and experiences in school, and they help to reduce his fear when in anxiety-producing situations. 2. Christopher finds comfort in familiar situations. Because of this habit, he will probably build strong relationships with the people he does trust. He also will perform best in a school setting that is structured and routine. His home environment should also be predictable and scheduled, so that Christopher always knows what to expect next. 3. Christopher realizes that he is different than most people. His inability to appropriately understand social situations impacts his friendships and relationships with others. He also could become embarrassed for being different, which could negatively affect his self-esteem. 4. Christopher's ability to observe all aspects of his surroundings in a very detailed manner helps him to organize the sensory stimulation he is receiving from the environment. It will be beneficial to slowly introduce Christopher to

new situations, and allow him plenty of time to observe and take in his surroundings.

5. Christopher prefers that there is an order and routine within his daily life.

Without this, he struggles to maintain a clear focus and he gets upset.

Schedules, calendars, and expected behavior would be beneficial for

Christopher to understand and implement before going somewhere. Christopher

experiences sensory overstimulation when he goes to an unfamiliar place.

Because he is not relaxed in new situations, it could impact building

relationships, community mobility, and learning new things at school.

Table 3

Theme 3 Chart

Theme 3	Theme 3: Christopher experiences sensory information differently, and his experiences impact his ADLs/IADLs (meal preparation and cleanup, toileting, community mobility, shopping, education, and social participation).
Sub-Themes	<ol style="list-style-type: none"> 1. Auditory sensitivity 2. Visual sensitivity 3. Olfactory sensitivity 4. Proprioceptive sensitivity <p>Areas of the Occupational Practice Framework that are impacted by Christopher's sensory needs: meal preparation and clean up, toileting, community mobility, shopping, education, and social participation.</p>
Key Quotes	<p>4. "And when I saw how big the room was that the train was in and I heard how noisy and echoey it was, I had to kneel down on the ground for a bit because I thought I was going to fall over." (p. 168) and "And then there was a sound like people fighting with swords and I could feel a strong wind and a roaring started and I closed my eyes and the roaring got louder and I groaned really loudly but I couldn't block it out of my ears and I thought the little station was going to collapse or there was a big fire somewhere and I was going to die. And then the roaring turned into a clattering and a squealing and it got slowly quieter and then it stopped and I kept my eyes closed because I felt after not seeing what was</p>

	<p>happening. And then I could hear people moving again because it was quieter. And I opened my eyes but I couldn't see anything at first because there were too many people. And then I saw that they were getting a train that wasn't there before and it was the train which was roaring. And there was sweat running down my face from under my hair and I was moaning, and groaning, but different, like a dog when it has a hurt its paw, and I heard the sound but I didn't realize it was me at first" (p. 176).</p> <p>5. I looked around and it was dark and there were lots of bright lights...and it made me feel sick. I kept my eyelids very close together and I just looked at the shapes of the roads and then I knew which were [which]" (p. 189).</p> <p>6. "My memory has a smell-track which is like a soundtrack" (p. 76).</p> <p>7. "And then I picked up the bongo drums that uncle Terry had bought me and I knelt down in the corner of the room and I pressed my head into the join between the two walls..."(p. 209).</p>
Definition/Description	<p>People with SPD can be hypersensitive or hyposensitive to environmental stimuli regarding any of the body's senses. Christopher has significant hypersensitivities to the following:</p> <p>4. <u>Auditory</u>- Auditory sensitivity could appear as inattention or distraction by other sounds, distress due to loud or high pitched noise, and it may contribute to difficulty reading aloud (Kranowitz, 2003).</p> <p>5. <u>Visual</u> - Visual sensitivities could include confusing left and right, misjudging spatial relations (which causes tripping or falling), difficulty tracking a moving object, and fatiguing easily in school (Kranowitz, 2003).</p>

	<p>6. <u>Olfactory</u>- Olfactory (sense of smell) sensitivities could lead to picky eating and licking and tasting inedible objects (Kranowitz, 2003).</p> <p>7. <u>Proprioception</u>- Proprioception difficulties include body positioning problems such as, poor body awareness, poor balance, difficulty with unfamiliar and complex motions, chewing and fidgeting with clothes, and initiating body feedback (such as cracking knuckles or stretching limbs) (Kranowitz, 2003).</p>
Clinical Insight	<p>1. Christopher is hyper-sensitive to noise. He seeks out quiet places to concentrate and focus. When he is in the unfamiliar, hectic train station (as mentioned above), he becomes overwhelmed by the amount of auditory input, and he has to groan to keep out the sound and hold his ears.</p> <p style="padding-left: 40px;">Intervention: Involving musical instruments like slide whistles or drums where the child is in control could be beneficial to reducing noise sensitivity. Playing music, using rhymes, and clapping/tapping to music or sounds may also be beneficial (Kranowitz, 2003).</p> <p>2. Christopher is hyper-sensitive to visual stimulation. He does not like bright lights or a lot of people. He is overwhelmed by colors, signs, there is a great example of his sensitivity in the book when he describes the road signs as completely unreadable as he gets more and more overwhelmed.</p> <p style="padding-left: 40px;">Intervention: Playing a fishing game (using magnets), flashlight tag, watering plants, and more may be helpful occupational therapy intervention ideas for visual sensitivities in the clinic or at home (Kranowitz, 2003).</p>

3. Christopher is hyper-sensitive to smell. He describes people and situations based on the scents associated with a specific moment in time. This heightened sensitivity to smell could also contribute to picky eating and problems with nutrition if it interferes enough with diet.

Intervention: Using scented markers, scratch and sniff stickers, guessing foods based on their smell or taste and slowly introducing new foods with varying textures, colors, and smells (Kranowitz, 2003).

4. Christopher seeks proprioceptive input. He desires to be in small and dark spaces. Throughout the book, he describes how he goes to the kitchen cupboard when he gets upset to feel safe. He also mentions enjoying sitting in the storage area on the train, behind the garden shed, and between two cars. The sensory input is less in a smaller area.

Intervention: He seeks the security of a small, tight space. Intervention ideas include having a space for a crash pad, making a cardboard box fort or fabric tube/tunnel, and pulling heavy wagons (Kranowitz, 2003).

Areas of the Occupational Therapy Practice Framework (p. 620-621)

-Meal preparation and clean up: planning, preparing, serving well-balanced, nutritional meals and cleaning up food and utensils after meals.

-Toilet hygiene/toileting: obtaining and using supplies; clothing management; maintaining toileting position, transferring to and from toileting position, cleaning body; and caring for menstrual and continence needs (including catheters, colostomies, and suppository management)

	<p>-<u>Community mobility</u>: moving self in the community and using public or private transportation such as driving, or accessing buses, taxi cabs, or other public transportation systems.</p> <p>-<u>Shopping</u>: preparing shopping lists (grocery and other); selecting and purchasing items; selecting method of payment; and completing money transactions.</p> <p>-<u>Education</u>: includes activities needed for being a student and participating in a learning environment.</p> <ol style="list-style-type: none">1. Formal education: including the categories of academic (e.g., math, reading, working on a degree), nonacademic (e.g., recess, lunchroom, hallway), extracurricular (e.g., sports, band, cheerleading, dances), and vocational (prevocational and vocational) participation. <p>-<u>Social participation</u>: activities associated with organized patterns of behavior that are characteristic and expected of an individual or an individual interacting with others within a given social system</p> <ol style="list-style-type: none">1. Community- activities that result in successful interaction at the community level (i.e., neighborhood, organizations, work, school).2. Family- activities that result in successful interaction in specific required and/or desired familial roles3. Peer, friend- activities at different levels of intimacy, including engaged in desired sexual activity.
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Figure 1

Web Displaying the Interrelated Concepts of the Themes



