Enhancing occupational performance across setting: an occupational therapy case study with a child with attention deficit hyperactivity disorder

Kendra L. Elchert
The University of Toledo

Follow this and additional works at: http://utdr.utoledo.edu/graduate-projects

This Capstone Project is brought to you for free and open access by The University of Toledo Digital Repository. It has been accepted for inclusion in Master’s and Doctoral Projects by an authorized administrator of The University of Toledo Digital Repository. For more information, please see the repository’s About page.
Enhancing occupational performance across settings: An occupational therapy case study with a child with Attention Deficit Hyperactivity Disorder

Kendra L. Elcertain

Faculty Advisor: Alexia E. Metz, Ph.D., OTR/L

Site Mentor: Lindsey Love-Moore, OTR/L

Occupational Therapy Doctorate Program

The University of Toledo

May 2012

Note: This document describes a Capstone Dissemination project reflecting an individually planned experience conducted under faculty and site mentorship. The goal of the Capstone experience is to provide the occupational therapy doctoral student with a unique experience whereby he/she can demonstrate leadership and autonomous decision-making in preparation for enhanced future practice as an occupational therapist. As such, the Capstone Dissemination is not formal research.
Abstract

Children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) often have increased difficulty sustaining attention to their daily expectations. In addition to decreased attention, children diagnosed with ADHD often struggle with co-morbidities such as behavioral issues and/or Sensory Processing Disorder (Yochman, Parush, & Ornoy, 2004). There are many facets of ADHD and SPD that can be problematic for the child and those involved in the child’s daily life. One difficulty is the variability in etiology and presenting behaviors. Secondly, because the diagnosis of ADHD emerges in young children, it is difficult to gain understanding their child experiences. Children with ADHD and SPD may receive therapies from multiple disciplines. It can be difficult for each practitioner to stay informed of a child’s difficulties, progress, strengths, and barriers across in his/her typical settings. This case study implemented an across-settings approach to providing occupational therapy for an 8 year-old boy and his family for school and self-care related occupations. The Occupational Therapy Psychosocial Assessment of Learning or OT PAL (Townsend, Carey, Hollins, Helfrich, Blondis, Hoffman, Collins, Knudson, and Blackwell, 2001) and the Sensory Profile Caregiver Questionnaire and Teacher Companion (Dunn, 1999) were used to measure the child’s progress over the course of 6 weeks of intervention. Intervention techniques focused on exploring sensory strategies and environmental adaptations to decrease distractions during school-related tasks, implementing the use of visual schedules, decreasing anxiety levels, and improving family communication. The results of the case study were notably improved occupational performance, enhanced communication across disciplines, and decreased stress levels for the whole family.
Introduction

The purpose of this case study was to develop and implement strategies for a family-centered, home and school program to decrease avoidance behaviors related to school work and self-care tasks for a pediatric client with Attention Deficit Hyperactivity Disorder (ADHD). The client was a creative eight-year-old boy named “Brandon”, who lived with both biological parents and two younger brothers. Brandon was in the 2nd grade at a public school elementary, where he had recently qualified for an Individualized Education Plan (IEP). Though Brandon appeared to be quite similar to his typically developing peers, there were barriers that made it more difficult for him to perform at the same academic level.

Brandon was born at 40 weeks with no complications. His mother reported that all his developmental milestones were age appropriate. However, Brandon was not performing at the academic level of his peers and had been struggling with mild behavioral problems while at school and in his home. Therefore, at the age of five, Brandon was evaluated by the Treatment and Education of Autistic and Related Communication-handicapped Children center (TEACCH) for possible Autism Spectrum Disorders (ASD). Brandon did not meet the criteria for ASD and was therefore not eligible for TEACCH services.

After receiving the results from the TEACCH center, Brandon’s mother continued to seek professional services for her son. She was concerned that Brandon would not do well in the first grade without more individualized attention from his teachers. Shortly thereafter, Brandon was evaluated by a clinical psychologist and was given a diagnosis of ADHD. According to the National Institute of Mental Health (2012), or NIMH, symptoms of ADHD can include difficulty staying focused and paying attention, difficulty controlling behavior, and hyperactivity. The
inattention, hyperactivity, and impulsivity symptoms must be present for greater than six months in order to be diagnosed as ADHD. Although the exact cause for ADHD is unknown, the NIMH states the disorder is likely a combination of genetic and environmental factors. Further discussion of Brandon’s performance skills related to his diagnoses will be detailed in the evaluation portion of the case study.

After receiving the ADHD diagnosis, Brandon was also seen for an occupational therapy evaluation. At the time, Brandon presented to occupational therapy with unusual sleeping patterns and behavioral concerns. He was discharged after several treatments for not making noticeable progress. Because his parents’ concerns persisted, Brandon was re-evaluated at age 8 for Sensory Processing disorder (SPD). Brandon’s primary impairments at the time of the re-evaluation were sensory hypersensitivities and anxiety. According to the Sensory Processing Disorder Foundation (2010), “Sensory processing is a term that refers to the way the nervous system receives messages from the senses and turns them into appropriate motor and behavioral responses.” When a person has difficulty processing the sensory input, he/she can experience difficulties when performing various daily activities. Ahn, Miller, Milberger, & McIntosh (2004), report that at least 1 in 20 children may be affected by SPD. Although children are most commonly diagnosed with SPD, adults who have been left untreated can experience symptoms of SPD. Similarly to ADHD, the exact cause for SPD remains unknown. However, preliminary research suggests that SPD is often inherited and is most likely caused by a combination of genetic and environmental factors.
Reynolds and Lane (2009) found that children with ADHD and sensory overresponsivity were significantly more anxious than children with ADHD only or children with no ADHD or sensory diagnosis. Therefore, during the evaluation, the occupational therapist conducted the Short Sensory Profile (Dunn, 1999), and per parent report, Brandon scored in the definite difference category for: tactile sensitivity, underresponsive/seeks sensation, auditory filtering, and visual/auditory sensitivity. From the results of a systematic literature review Koenig and Rudney (2010) report that children with difficulty processing and integrating sensory information displayed performance deficits in the areas of; social participation, play, activities of daily living (ADLs), instrumental ADLs, and school. This might suggest that many of Brandon’s mothers concerns can be directly related to his diagnosis of ADHD and sensory processing disorder (SPD). Upon agreeing to participate in the pediatric case study, Brandon’s mother’s main concerns were the family’s high stress levels, the parent’s lack of successful and consistent disciplining strategies, and Brandon’s sensory hypersensitivities, lack of motivation for personal hygiene, difficulty coping with transitions and changes to his normal routine, and his delayed academic performance.

This case employed four complementary approaches to enhance Brandon's performance of academic tasks both in the classroom and the home environment: application of TEACCH techniques, the Model of Human Occupation (MOHO), Sensory Integration (SI) theory, and the Family Centered Care approach. These approaches are in agreement that there is a correlation between the environment and how the client performs in various ADLs.
TEACCH recognizes that children with ASD often struggle with organizational skills and that setting tasks up from left to right (the order we naturally tend to perform tasks such as reading), allows the tasks to be more clear (Olive Hollinger, personal communication, February 21, 2012). The TEACCH techniques make the demands of the task clear both visually and verbally. The demands of the task include its expected duration a concept that can be difficult for children with ADHD to understand. With education, parents and caregivers can learn how to TEACCH techniques to setup environments that will be conducive to learning for their individual child (See Appendix A for a brief description of the programming available through the TEACCH center).

The Model of Human Occupation (Kielhofner & Burke, 1980) or MOHO, emphasizes the importance of supporting the individual’s active participation in occupations. MOHO conceptualizes that each person can be characterized into three interacting elements: volition, habituation, and performance capacity (Kielhofner, 2008). Volition is the process by which people are motivated toward and choose the activities they do (Kielhofner, 2009). The thoughts and feelings that drive one’s volition can be sub-categorized into; personal causation, values, and interests. Personal causation is the ability to look inward and recognize one’s strengths and weaknesses, and the overall effectiveness or lack of effectiveness one has in various daily activities. Values are one’s own personal beliefs about what is good, right and important. People of all ages will be more motivated to engage in occupations that enact their values because they will feel a greater sense of personal worth/accomplishment. Interests are self-generated through the engagement or avoidance of occupations one is exposed to throughout his/her life. Individuals will also have a greater sense of satisfaction while engaging in
occupations that interest them. For Brandon, a great source of volition comes from his desire to draw. Through personal causation, Brandon recognizes that he is a talented drawer and feels confident when he is engaging in this activity. He also experiences great meaning and purpose in the activity because he values this occupation and feels a strong sense of worth because of his talent. However, when volition is negatively affected, people can choose to make decisions to avoid tasks. Brandon had learned that by avoiding doing his own school-work, his classmates would help him. This behavior can ultimately lead to a loss of skills and lower confidence levels in relation to school-work.

MOHO recognizes the importance of habits and roles in a person’s everyday life and refers to these elements as habituation. According to Kielhofner (2009), “Habituation is a process whereby people organize their actions into patterns and routines (p. 151).” The MOHO recognizes the habituation can be subcategorized into one’s habits and roles. Habits are a part of a person’s daily routine that unfold automatically or without having to plan out one’s actions before engaging in them. For example, Brandon should be at an age where he can go through his self-care routine independently and consistently (Haley, Coster, Ludlow, Haltiwanger, & Andrellos, 1992). However, he was often distracted by wanting to draw or engage in play related to his favorite video game character; he rushes through self-care and has not developed age-appropriate habits for his self-care routine. In addition to habits, MOHO recognizes that each individual can have a multitude of roles that guide how they interact with their physical environment. For example, some of Brandon’s roles are a son, a brother, a student, and a child.
MOHO stresses that occupation results from a combination of an individual’s volition, habituation, and performance capacity with the environment (Kielhofner, 2008). According to Kielhofner (2009), “The environment includes the particular physical, social, cultural, economic, and political features within a person’s context that influences the motivation, organization and performance of occupation (p. 152).” The model assumes that when an individual’s inner characteristics are supported by the environment, he/she is more likely to engage in occupation and have more successful occupational performance. Like MOHO, SI theory takes the environment into consideration in order to achieve optimal occupational performance.

SI theory was originated by Dr. A. Jean Ayres as a result of observing children with learning disabilities and discovering that they had difficulty interpreting sensory information from their bodies and the environment. Through her studies she observed correlation between the sensory processing problems and the motor and academic learning deficits. Dr. Ayres (1972) went on to define sensory integration as the, “neurological process that organizes sensation from one’s own body and from the environment and makes it possible to use the body effectively within the environment (p. 204).” Therefore SI theory recognizes that the environment may present challenge to an individual with sensory processing difficulties. In an environment that does not match an individual’s sensory processing abilities, he/she may have a decrease in occupational performance. Following factor analysis studies, such as Bundy (2002), Miller, Anzalone, Lane, Cermack, and Osten (2007) proposed that the term sensory integration disorder can also be broken into three sub-categories: sensory modulation disorder, sensory-based motor disorder, and sensory discrimination disorder. According to Miller and colleagues (2007), sensory modulation disorder is when an individual has, “difficulty
responding to sensory input with behavior that is graded relative to the degree, nature, or intensity of the sensory information (p. 209).” There are three subtypes within sensory modulation disorder: sensory overresponsivity (responding with more speed, intensity, or duration than is typical), sensory underresponsivity (disregarding sensory information leading to lethargy) and sensory seeking/craving (seeking excessive amounts of sensory information or a specific type of sensory information). Sensory-based motor disorders are described as having difficulties with postural or voluntary movement, which include postural disorders and dyspraxia. Sensory discrimination disorder can involve difficulties distinguishing tactile, auditory, oral, visual, vestibular, and/or proprioceptive sensations. Ottenbacher (1991) completed a meta-analysis to examine research done between the years of 1972 and 1981 and concluded that there was sufficient scientific evidence to support the application of SI theory. This case study applied SI theory to Brandon’s treatment approach in order to cope with the barriers to performing at a typical level at school and at home. Further discussion of how SI theory relates to Brandon’s occupational performance will be presented in the evaluation section.

The Family Centered Care conceptual framework (Rosenbaum, King, Law, King, & Evans, 1998) suggests that by involving the family during intervention, both the child and their family members will experience increased positive results, family satisfaction, and decreased parental stress. Rosenbaum et. al. (1998) identified 3 premises for integrating Family Centered Care into the therapeutic process. The first is the knowledge and consistency within families and valuing that parents often know their children the best. Therefore, the pediatric therapist should (when appropriate) involve the parents into the intervention process by encouraging them to
participate in all steps of therapy (planning, evaluating, treatment, etc.). The second premise is that all families are different and unique. Therefore, the pediatric therapist should view each child and family as individual and never assume that what may have been the best approach for one family would be the best approach for another. Identifying children or parents as “typical” is not appropriate for the Family Centered approach. The third premise is that optimal child functioning occurs within a supportive family and community context. Taken together, in this pediatric case study, it was important to consider and incorporate the family’s personal concerns and goals into the development of an intervention plan for occupational therapy.

Segal (2004) discussed the concepts of family routines, rituals, and identity, and their relationship as a context for occupational therapy interventions in home. Segal (2004) suggests that routines are patterned behaviors that have instrumental goals that give life order, whereas rituals give life meaning. As previously stated, individuals can be defined by several different roles on a daily basis. One of those roles is typically a family member of some sort. For example, Brandon is a son and an older brother of two. Within his family, there are daily routines that Brandon is a part of. Segal (2004) defines these family routines as, “mechanisms for the organization and coordination of activities toward the achievement of the instrumental goals in a timely manner (p. 500).” In Segal’s study (2004), data about morning routine was derived from 40 families. Of these, 19 had a child with ADHD, while four families had two children with ADHD. Amongst the remaining families, nine had children with various physical disabilities, six had children with sensory disorders, and six had typically developing children who did not need or receive any interventions. Each family underwent a 45-90 minute interview about their daily morning routines. Thematic analysis of the interviews revealed that routines and rituals can be
a way for an individual (or family) to feel a sense of identity, belonging, and achievement and without routine, the environment can become unorganized, unpredictable, and overall stressful (Segal, 2004). Brandon’s decreased ability to cope with changes to routine and the disruption his response caused reflects these findings.

Brandon’s mother has pinpointed homework time as the most difficult routine throughout a typical day, closely followed by his morning and bedtime self-care routines. She reports that she typically struggles with how to effectively punish Brandon for his defiant behaviors and temper tantrums after being asked to begin a task. Typically, what begins as a small defiant behavior quickly escalates into a large temper tantrum that results in not being able to get his expected daily occupations completed. It consistently takes increased time and maximal repeated verbal demands to get Brandon to stop one activity and begin another. He typically states that he does not want to do the task and begins to cry, yell or leave the room. Once he engages in homework time, he quickly begins using learned avoiding behaviors such as singing, drawing on his paper, and asking non-relevant questions. Because of Brandon’s difficulty sustaining attention to his homework, his grades are below those of his peers and have not showed any significant improvements in the last few years, regardless of the school’s efforts to adapt to meet his individual needs as a student. One of the concerns from Brandon’s therapists, teachers, and parents is that the classroom and homework environment are not beneficial to his occupational performance. TEACCH techniques, MOHO, and SI theory are all in agreement that there is a correlation between the environment and how the client performs in various ADLs.
This case study was a unique approach to treatment because Brandon received services across several settings but did not have a case manager to communicate with all of the disciplines treating him. I was able to observe Brandon in all of his typical environments (i.e. home, school, community, speech, occupational therapy, counseling, etc), and gain insight to how the environment affected Brandon’s performance. In addition, I was able to be a liaison to everyone involved with Brandon’s care and inform all the disciplines of my findings related to the case study and make suggestions across settings. This ultimately led to Brandon’s care team being more informed and consistent with one another than previous to the case study.

Evaluation

Approximately 1 month after the re-initiation of occupational therapy services, Brandon was evaluated for the purposes of the Capstone case study using the Occupational Therapy Psychosocial Assessment of Learning or OT PAL (Townsend, Carey, Hollins, Helfrich, Blondis, Hoffman, Collins, Knudson, and Blackwell, 2001) and the Sensory Profile Caregiver Questionnaire and Teacher Companion (Dunn, 1999).

OT PAL

The OT PAL was the first assessment that was completed (see results in Appendix B). The OT PAL is a MOHO-based observational and descriptive assessment, which views the person’s occupational performance within the context of his/her naturalistic environments (Kielhofner, 1995). The OT PAL includes measures of psychosocial skills, social competence, and school environment fit, which all have a direct impact on one’s ability to learn. This assessment also provides the opportunity to gain information in a holistic way by involving the client,
his/her teacher, and his/her parents in the assessment process.

According to Townsend and colleagues (2001) the OT PAL is meant to target students between the ages of 6-12 years old who are experiencing difficulty meeting expectations in the classroom. It is recommended that the student has been in the classroom where the evaluation will take place for a minimum of 1 month. The assessment consists of a pre-observation interview, a Likert (1-4) rating scale for classroom observation, a teacher narrative, a student narrative, and a parent narrative. The pre-observation and rating scales are meant to be administered in a minimum of forty-minute periods. The 3 interviews are recommended to be administered in private settings after the observation portion of the assessment and should take about fifteen minutes to complete. Results are then summarized and interpreted by the occupational therapist to determine the effectiveness of the student-classroom fit, the student’s strengths and areas of need, and the impact on the student’s ability to meet classroom expectations.

The occupational therapist has a number of assessments available to use to evaluate children’s occupational performances. However, the majority are limited to information obtained outside of the classroom environment. Therefore, “The Model of Human Occupation (MOHO) was chosen as the theoretical framework for the OT PAL to provide a framework for understanding the psychosocial and environmental elements that influence a student’s school performance” (Townsend, Carey et al., p. 8, 1999). MOHO views occupational performance as being an interaction between the person, the task, and the environment with each person being characterized in three interacting elements: volition, habituation, and performance capacity (Kielhofner, 2008). Similarly, the OT PAL assesses abilities that fit into the volitional (or
the making choices section of the assessment) and habituation (habits, routines and roles) categories, but this assessment does not evaluate the performance category. Therefore the OT PAL assessment is expected to be used in combination with other occupational therapy assessments in order to complete a holistic view of the student’s performance. The OT PAL assessment was chosen to evaluate the student-environmental fit, gather perspectives from several key people in Brandon’s everyday life, and to be able to make environmental adaptation suggestions to enhance his performance related to academics. Overall, the OT PAL was a useful assessment for Brandon. Below is a discussion of the results of the OT PAL.

In the volition or making choices section of the OT PAL, Brandon demonstrated varying skill level in the areas of personal causation, values, and interests. Brandon consistently demonstrated competence that supports independent functioning in the area of following the teacher’s directions. He began, continued, and discontinued activities when given directions by the teacher to do so. However, Brandon struggled to perform in a self-directed manner when appropriate. Brandon was ineffective at staying engaged throughout an activity. When interviewed, Brandon’s teacher described the environment as being noisy, and Brandon agreed by stating that doing morning work was the most difficult for him because it is so loud. Brandon also demonstrated difficulty engaging in conversation during group work in a self-directed manner. During the student interview, Brandon stated that he does not like getting bossed around during group work. In the teacher interview, his teacher stated that Brandon was very selective about which classmates he would speak to. She also stated that he tended to shy away from the more outgoing students. However, on the day of observation, in the afternoon,
Brandon took more social risks and participated by answering questions when directed by the teacher.

Brandon also demonstrated strong values throughout the typical school day. His teacher identified him as a leader for following the classroom rules. She stated that he would even raise his hand to point out when other students are not using their inside voices. The last sub-category of volition (making choices) is the interest subsection. Brandon clearly showed preferences for activities and was able to choose activities that he liked to engage in throughout the day. According to Brandon, his teacher, and his parents, Brandon’s favorite thing about school was getting to draw. Before beginning any activity, Brandon consistently raised his hand and asked, “What can I do when I am finished?” The teacher allowed Brandon to draw when he finished assignments. Brandon admitted that the prospect of being able to draw is distracting by saying, “It is hard to concentrate because I want to draw.” However, Brandon valued his performance in the classroom and often asks the teacher, “Did I make you happy?” Brandon’s need to be reassured for good behavior may reflect decreased sense of self-efficacy. It can be assumed that Brandon’s choice to always follow the classroom rules, and even point out when others are not, may be due to the high value he gives to his teachers’ and parents’ view of him as a student. His parents reported that Brandon will often just “tell you what you want to hear.”

Based on the observations and semi-structured interviews related to the “making choices” section, reduced self-directed behaviors and distractibility were identified as concerns. Through observation, along with conducting the OT PAL, it was evident that Brandon
thrived on habits and routines. He demonstrated competent performance in the majority of the habits and routines section of the OT PAL. Per teacher and parent report, Brandon adhered to school routines, maintained his personal belongings, and completed smooth transitions between routine activities while at school. According to Brandon’s teacher, he was also able to complete assignments within time guidelines; however, he often depended on other classmates to complete his work on time. Although Brandon’s teacher reported that his transitions were much smoother than in previous years, with change to Brandon’s normal daily routine he struggled to cope appropriately. His teacher reported that he used to hide under his desk, but this behavior has decreased over time. Similarly, one of Brandon’s parents’ biggest concerns related to the difficulties the family faces around transitioning to homework time.

Brandon’s reliance on routine may have been an underlying factor in his negative behaviors related to homework. Brandon’s parents reported that they frequently change Brandon’s routine related to after-school activities. On some days they may have needed to run an errand after picking him up from school, other days Brandon was allowed free-time after school, and some days he was expected to go straight to homework. In addition to these routine inconsistencies, Brandon had many appointments with various health care professionals throughout the week that are difficult for him to keep track of.

The final rating scale section of the OT PAL relates to the student’s roles. Through observation and interviews, it was evident that Brandon demonstrated a well-established student role, but struggled to transition between different roles. For example, Brandon accepted the teacher’s authority and followed directions very well. He understood the classroom expectations; however, he did not assume roles consistent with those classroom
expectations. When asked, his teacher described Brandon as, “Quiet, independent, and relies on others for help.” Help from others was readily available because the class sits in groups of 4 students. This may reflect learned helplessness related to completing school work independently.

When asked what roles Brandon assumed within the classroom, the teacher responded that Brandon was a follower and typically liked to, “do his own thing and tends to shy away from other students.” Because of Brandon’s avoidance of the leadership role and social interaction with the majority of his classmates, his roles of leader, friend, and player were not well established.

During the parent interview, Brandon’s parents stated that his does not talk about friends at school, only the select few students that bother or pick on him. They also stated that Brandon used to become “obsessed” with select classmates for a period of time and would only ever talk about that one person. However, they had not seen or heard this behavior yet in the 2nd grade. When Brandon was asked about his friends at school, he stated that he has a lot of friends and that he really likes school. This response was consistent with the high value he gave to his teachers’ and parents’ view of him as a student. Brandon’s teacher also stated that Brandon typically avoided being involved in group physical activities and preferred to sit on the sidelines during recess. It was important to address these roles during the intervention phase because each role can directly affect the student role and ultimately Brandon’s academic performance.
Sensory Profiles

The second assessment completed was the Sensory Profile Caregiver Questionnaire (Dunn, 1999) and School Companion (Dunn, 2006). Previous to this case study, the Short Sensory Profile (Dunn, 1999) was administered; however, the full Sensory Profile is a more exhaustive evaluative tool for possible sensory processing difficulties in multiple environmental settings. By using both the Sensory Profile Caregiver Questionnaire and the School Companion I was able to again involve both Brandon’s parents and teacher into the evaluation process in order to gain a more holistic view of his functional barriers to performance.

The Sensory Profile Caregiver Questionnaire is designed for caregivers to report on children ages 3-10 with possible sensory processing difficulties. The Sensory Profile is an evaluation tool used to determine how well an individual is processing sensory information during everyday situations (Pearson, 2012). In addition, the occupational therapist can assess how the various sensory systems may be affecting the individual’s functional performance in a variety of settings. The questionnaire contains items that are grouped by sensory processing, modulation, and behavioral and emotional responses. Furthermore, the items are divided into sub-categories that characterize children by their response to sensory stimuli including sensory seeking, emotional reactive, low endurance/tone, oral sensitivity, inattention/distractibility, poor registration, sensory sensitivity, sedentary, and fine motor/perceptual (Pearson, 2012). Each statement/question has the same 5 answer choices that relate to how often the child demonstrates the stated behavior. The choices are always, frequently, occasionally, seldom, and never. For example, in the visual processing section in the sensory processing group, the statement reads, “Prefers to be in the dark” and the caregiver marked “seldom” as the
response. After completing the entire questionnaire, the occupational therapist scores the data to determine if the child scored in the typical performance, probable difference, or definite difference category when compared to the norm. According to the results of the caregiver questionnaire, Brandon scored in the probable and definite difference categories for several sensory groups indicating occupational therapy services were appropriate (see Appendix C).

Similar to the Sensory Profile Caregiver Questionnaire, the Sensory Profile Teacher Companion is an evaluation tool used to determine how well a child is processing sensory information. However, this assessment involves the teacher reporting on the child interaction in the classroom setting. Therefore, using the Sensory Profile School Companion along with the Sensory Profile Caregiver Questionnaire allows the occupational therapist to gain a comprehensive evaluation in a variety of settings. The Sensory Profile School Companion is designed to target children ages 3 years, 11 months to 11 years of age, and therefore was an appropriate tool to use for Brandon. Some of Brandon’s parents concerns are directly related to his academic performance and behaviors during school. Therefore, it was essential to observe and assess while Brandon was in the school environment. Similar to the Caregiver Questionnaire, Brandon’s results of the School Companion indicated sensory processing difficulties in several categories (see Appendix D).

Given the results of the two versions of the Sensory Profile, Brandon demonstrated definite differences in the categories of avoiding, tolerance for sensory input, auditory sensitivity, movement, behavior, sensory seeking, inattention/distractibility, poor registration, sensory processing, and modulation. The use of the Sensory Profiles in conjunction with the OT PAL showed a more holistic view of Brandon’s functional barriers to performance, and how the
barriers relate to one another across settings. Based the concerns of Brandon’s family and on the assessment results, intervention goals for the case study were set and a formal intervention plan was designed to target Brandon’s most significant barriers to performance.

Goals

To provide direction to the case study intervention plan, several long-term goals (LTG) and short-term goals (STG) were identified for Brandon. The goals were derived from the results of unstructured interviews with Brandon’s parents and teacher, Brandon’s standardized assessments, and my observations. The overall main concerns for Brandon’s care team were his poor academic performance, difficulty coping with various demands expected of him throughout the day, and the stress that these difficulties place on the entire family. After having the opportunity to observe Brandon in all of his typical environments, I was able to identify common barriers between settings that needed to be addressed. The long-term goals were designed to be addressed during the course of six weeks of intervention, along with several corresponding short-term goals to be addressed within the first 3 weeks. The goals were as follows:

(1) LTG: To demonstrate increased independence at school Brandon will complete all individual work without asking for answers after verbal instructions from the teacher 50% of the time.

(1) STG: Brandon will sit in an individual area to complete individual assignments 100% of the time with minimal verbal cues to relocate.

(2) LTG: Brandon will complete assignments individually and without tantrums with the use of headphones or music 3/5 days at school, reflecting decreased anxiety.
(2) STG: Brandon will wear headphones or listen to music during morning work with minimal verbal cues to comply 100% of the time.

(3) LTG: Brandon will brush his teeth following a visual chart with minimal verbal cues for thoroughness 100% of the time, reflecting increased attention to self-care tasks.

(4) LTG: Brandon will actively participate in physical choices during recess at school 100% of the time.

(5) LTG: Brandon will attend weekly organized sport practice with minimal verbal cues for encouragement 50% of the time.

(5) STG: Brandon and his parents will choose an organized sport for Brandon to participate in as evidenced by signing up for the program.

(6) LTG: Brandon will follow directions with minimal verbal cues 50% of the time, reflecting decreased negativity in response to changes in routine.

(6) STG: Brandon will participate in the construction of a visual timeline with moderate verbal cues and physical demonstration from OT for instructions 100% of the time.

(7) LTG: Brandon will finish work within 25 minutes with minimal verbal cues 3/5 days, reflecting increased sustained attention.

(7) STG: Brandon will utilize therapy ball seating and headphones during homework with minimal verbal cues to comply 3/5 days.

(8) LTG: Brandon’s parents will identify and participate in intensive home health services in order to have carry-over following discharge from the case study by week six of intervention.
These goals are consistent with the Family Centered Care framework, MOHO, and SI theory in that they all focus on Brandon and his families volition (personal causation, values and interests), habituation (habits and roles), performance capacity, environment, and the dimension of “doing.” Becoming more independent at school and in the home is very important to Brandon’s family and for his success throughout the lifespan. Similarly, Brandon derives a great sense of worth and accomplishment by pleasing his family and teacher.

Interventions

Following from the goals, the interventions for Brandon’s pediatric case study were planned by drawing from the complementary approaches employed in this case study. The intervention plan was designed to identify ways that subtle adaptations could be made to Brandon’s typical routines and environments that would lead to a more successful occupational performance in school, therapy, home, and in the community (see Appendix E for specific suggestions made in support of each intervention plan). Beginning on March 1, 2012 Brandon received six weeks of occupational therapy intervention. It is important to note that during the student case study, Brandon continued to receive his usual treatment and that participation in the case study was above and beyond what his normal treatment plan was. In addition to his usual treatment, Brandon received four clinic sessions, two home sessions, four classroom visits and three community outings. Prior to the first session, the following plans were made for Brandon’s occupational therapy interventions:

(1) I discussed with Brandon’s teacher ways to increase Brandon’s individual work throughout the school day (in support of LTG 1 and 2).
(2) I discussed with Brandon’s teacher ways to decrease noise distractions during morning work (in support of LTG2).

(3) I worked with Brandon’s teacher to identify ways to inform Brandon of his free-time/after work choices and to eliminate drawing as a choice to decrease rushing through school work (in support of LTG 1 and 2).

(4) Brandon’s teacher and I identified potential ways to increase Brandon’s physical activity throughout the school day (in support of LTG 4).

(5) Brandon’s mother and I discussed increasing Brandon’s physical activity after school, preferably by enrolling in organized sport for both physical and social skills (in support of LTG 5).

(6) I discussed having Brandon’s teacher introduce the use of headphones with no-word music and therapy ball seating during homework time to increase attention to task (in support of LTG 7).

(7) I discussed with Brandon’s parents possible ways to separate Brandon from siblings and TV during homework to decrease distractions and decrease the amount of time it takes to finish homework (in support of LTG 7).

(8) I planned to work with Brandon to construct a visual timeline with ADLs (Appendix F) to show Brandon what typical daily time demands are for him throughout a typical day (in support of LTG 6).

(9) I fabricated a daily routine chart (Appendix G) for use in the home to guide Brandon through his daily tasks and to provide him preparation for any changes that may occur in his day (in support of LTG 6).

(10) I constructed a visual chart for teeth brushing (Appendix H) steps/thoroughness (in support of LTG 3).
(11) I made referral to Brandon’s mother and father to a professional who focuses on parenting skills for parents with children who have special needs (in support of LTG 8).

Consistent with the Family Centered approach, most of the intervention plans involved Brandon’s caregivers and teachers. They targeted both Brandon and his family’s performances across their typical settings/environments. In addition to being family centered, the intervention plans also focused on Brandon’s role of a student and a son. In accordance with MOHO, many of Brandon’s intervention plans were geared toward gaining autonomy with school work and self-care ADLs. The use of habits and routines in order to improve occupational performance across settings was included in his treatment. All of his intervention plans were designed to inspire volition through implementing meaningful and purposeful occupations into his daily routine. Drawing from SI theory, the treatment plan aimed to find self regulating strategies that Brandon could use in order to improve his success during ADLs and homework. For example, one specific intervention session that took place focused on exploring helpful sensory strategies that Brandon liked and thought he would use during therapy, school and/or at home: specifically, the use of alternative seating, feet and hand fidgets, therapeutic listening or listening to classical music, and placing textured surfaces on the underside of his desk for sensory input. One of Brandon’s sessions focused on exploring ways to include more physical activity during the day, and as a result Brandon, began to learn how to ride a bicycle while at the clinic. Consistent with TEACCH techniques, another intervention session focused on practicing using a visual chart to thoroughly brush his teeth.

For the purposes of this dissemination, I will be discussing in detail one therapeutic occupation implemented as part of Brandon’s intervention plan, changes I made in the planned
occupation and the rationale for the changes, the actual occupational performances I observed during the occupation, the inferred meanings and purposes for Brandon and his family, information gained through observation/participation of the therapeutic occupation, compensations or adaptations made by Brandon, and how and why I re-synthesized the occupational form.

**The Therapeutic Occupation**

The therapeutic occupation I will be discussing is *Visual Timeline of ADLs* (Appendix F). This occupation addressed several of Brandon’s goal areas, including decreased negative behaviors in response to routine changes and increased attention to task. The first attempt for the *Visual Timeline of ADLs* occupation took place in Brandon’s home. The area typically devoted to doing work is a large wooden table that rests against the kitchen wall and separates the kitchen area from the living room area. The table stands slightly above waist height for Brandon and the 4 chairs slightly below waist height. A strand of green theraband had been placed around the legs of one chair for Brandon to use for self-regulating movement, and therefore this chair has been deemed *Brandon’s chair*. While sitting at the table, the noise from Brandon’s siblings and the television can be easily heard from the adjoining living room. These noises typically consist of his two brothers playing and/or fighting, his mother disciplining them, opening and spilling toys onto the floor, and video game/television sounds and visuals.

For this therapeutic occupation, a visual timeline made of 4 pieces of 8X11”beige construction paper were stapled together in landscape orientation with each half hour of the day drawn in with black marker across the bottom of the pages (per the mothers report of the time Brandon wakes up at 7:00 AM to his bedtime at 8:00 PM). A package of multi-colored
8X11" construction paper was to be used to cut into block shapes to represent time and taped to the beige construction paper to indicate how long Brandon felt each activity should take him.

When I first arrived to implement the Visual Timeline of ADLs occupation, Brandon had a tantrum and went into his room and shut the door. When his mother and I opened the door to his bedroom, he had spilled out all his Legos and screamed, “I don’t want to do any work!” I began to explain that I had a fun activity planned for us to do together, Brandon again cried, “I don’t want to work with her, I want her to leave!” His mother then firmly told him to not speak to an adult that way and that he had 3 seconds to start picking up his Legos and she began to count. Brandon yelled, “I don’t understand why I need help, I just want to play with my Legos!” At this time, it was clear that I needed to leave the room and give Brandon some time to calm-down and speak with his mother privately. After approximately 5 minutes, Brandon asked if I would come back into his room, which I did. He then said, “Miss Kendra, I am sorry.” I asked him if he was ready to do the activity I had planned, and he asked if we could do the activity in his room instead of the table. I thought this was a fair request so I sat on his floor and spread the supplies out on the floor.

Beginning the occupation took several more verbal prompts and repeated directions. Brandon was very distracted by the toys in his room and could not remain focused for more than a few seconds at a time. Instead of using the scissors to cut out pieces of colored construction paper, Brandon tore the paper with his hands. I prompted him by saying things like, “Okay, how long do you think it should take to get ready in the morning?” Brandon would say a time, for example “1 hour” and then rip off a piece of paper that may not be the correct size and hand it to me to tape on the beige timeline. He would then pick up one of his toys and
begin playing without permission to do so. I told Brandon we should move out of the room, and he told me he would pay more attention.

The occupation continued, and Brandon listed getting ready, drawing, school, homework, play, eating and playing again as his only daily occupations. More specifically, he indicated that it should take 1 hour to get ready for school, that he should be allowed to draw at school for 1 hour; that school should be for 3 hours total; he left from noon until 3:00PM blank; then indicated he should do his homework for an hour, play for 1 hour, eat for 30 minutes, and then play for 2 hours before bedtime. During the rest of the occupation Brandon became distracted by the colored pieces of paper and began cutting out “paper dolls” instead of participating in the timeline occupation. It was my assumption that Brandon understood the concept of the timeline, but was too distracted and upset to fully participate. I felt that this occupation had been less effective than what I intended, but that it was important for Brandon to participate and understand the timeline. As a result, I decided to re-visit the Visual Timeline of ADLs occupation after making changes to the occupational form.

**Changes and rationale.** The first change I made in the planned occupation of Visual Timeline of ADLs was to change the setting. The first attempt took place in Brandon’s home, for the second attempt; the occupation took place at the occupational therapy clinic where Brandon attends therapy once a week. The rationale behind this change was to reduce the distractions of family members and noise levels while Brandon completed his therapy. Also, Brandon was typically better behaved in the clinic than at his home. I also judged that the clinic would be less invasive of Brandon’s personal space (his home). Another rationale for the change in setting was
because Brandon correlated the clinic with a constant routine and he does what is expected of him during occupational therapy.

Another change I made was having the room clear of clutter and no other toys in sight. The rationale for this change was to again decrease possible distractions to completing the timeline. I began the session by asking Brandon what he wanted to do for the first few minutes of therapy. I gave him the choice of swinging, drawing, or using the scooters. The rationale for this change was to allow Brandon more control of the situation and more active participation by allowing him to make a choice first. I also predicted that by allowing him to engage in play for the first few minutes would decrease the chance of negative behaviors prior to beginning the Visual Timeline of ADLs occupation. Allowing Brandon the opportunity to draw also adds personal meaning to his occupational therapy session because it is what is important to Brandon. I set a timer for 3 minutes and told Brandon that when the timer went off, we would begin the activity and if he participated and finished on time, he could choose another activity to do. Using this strategy gave Brandon a goal to work towards and a reward, which added motivation to finish the Visual Timeline of ADLs occupation.

The last change I made to the occupation was to eliminate the colored pieces of construction paper. Instead, I drew boxes with thick black marker to indicate a more typical amount of time each ADL should take (I left his original taped pieces on the timeline for comparison). I labeled each box with the daily activity. For example one box that was drawn to indicate a half an hour was labeled “Get ready for school.” The activities that I chose to include came from unstructured interviews with Brandon’s mother about what his typical activities are during the school week. The school week was chosen because Brandon’s mother reported that
he does not have a very typical schedule during the weekend. The activities drawn on the chart were get ready for school, ride to school, school work, drawing, lunch/recess, school work, ride home, free time, homework, eat, chores, get ready for bed, and bedtime. The rationale for eliminating the colored construction paper was to take away the distraction of using the paper inappropriately. Drawing the boxes prior to the session allowed Brandon to see the difference between the pieces of paper he taped on and what a more typical day looks like. By labeling each activity, Brandon was also able to get a better idea of what is expected from him on a daily basis. Next Brandon was allowed to choose a color to color in the boxes, therefore eliciting active participation. Overall, by making these changes I was able to grade the occupation down to promote increased success and enhanced meaning for Brandon during the occupation.

**Occupational performance observed after changes.** After implementing the changes to the occupation, Brandon’s occupational performance drastically improved. From the start of the occupation, I observed Brandon to be in a more pleasant mood, and he was more willing to participate. I judged that this was because he knew and understood what expectations are during therapy and wanted to please his therapist and mother while there. When I gave Brandon the choice of swinging, drawing, or using the scooter he chose to draw for 3 minutes. When the timer went off, Brandon asked to finish the last part of his drawing. I reminded him of our agreement, and he said, “OK, what are we doing again?” and put his crayon down.

I placed the visual timeline on the floor, along with a box of crayons and asked Brandon to join me on the floor. He immediately followed directions, showed facial expressions of excitement, and wanted to know what we were going to do. I explained how I had changed the chart and added boxes of his everyday activities. Brandon read them aloud and said, “Chores? I
don’t really have to do chores at home.” I responded by telling him that his mother would like him to clean his dishes, put his laundry in the laundry basket, and feed the dogs. He told me that he usually does those things at home, but that sometimes he does not feel like doing them. I pointed out what a small box was there for chores and what a short amount of time they take out of his day. We continued to go over each box from when he wakes up until bedtime, and Brandon remained engaged the entire time.

Brandon required no verbal encouragement to begin the occupation. However he wanted to rush through the Visual Timeline of ADLs occupation in order to draw. He quickly colored all boxes the same color without coloring in the entire space. When I asked him why he was going so fast he responded by saying, “Because I want to have time to draw at the end.” I reminded him that we needed to take our time and show good quality work. I explained that similar to this occupation, if he did not show quality work in other activities such as his school work, he would receive poor grades and would not be allowed time to draw. I continued to explain that sometimes we are asked to do things that we may not want to do, but that are important for us to learn to do on our own. I showed him on his timeline that if he completed his activities without defiant behavior, he would have plenty of time to play and draw throughout the day. He understood and said, “I need to do things the first time my mother asks me.”

Eliminating the colored pieces of construction paper was a very successful change because Brandon had less to be distracted by. He was not able to avoid the occupation by using the supplies inappropriately to engage in his own ideas of play. As previously mentioned, by drawing the boxes in, Brandon was also able to see the difference between what he thought he
should be doing throughout the day, and what a more realistic expectation was. I was able to point out this such as, “Brandon, do see where you left this large gap of time blank?” Also by drawing the boxes in prior to the session, Brandon was not able to argue what his activities should be, or refuse to cut out a piece of paper for a certain activity. Lastly, it gave Brandon the opportunity to choose a colored crayon and color in the boxes, as opposed to using scissors to cut pieces of paper, which was more meaningful and motivating for him.

Overall, the Visual Timeline of ADLs occupation was much more successful after the changes were implemented. More learning occurred as evidenced by Brandon’s active participation and sustained attention to the task at hand. He was also able to repeat things we discussed, and Brandon even added statements of understanding without prompting.

Inferred meaning and purpose. The Visual Timeline of ADLs occupation was planned and implemented because the construction of the timeline and the results were meant to be meaningful and purposeful for Brandon and his family. Brandon’s mother had consistently reported that she is concerned by Brandon’s defiant behaviors, lack of attention and interest in school, and his overall poor performance during school work. The majorities of Brandon’s defiant behaviors were in response to his mother or care team members asking him to do something he does not want to do. During the evaluation stage, Brandon’s teacher noted that, “If Brandon does not want to do it, he won’t.” Because drawing is so meaningful to Brandon, he is reluctant to do anything else. Therefore, I utilized an occupation that would be meaningful and purposeful to Brandon, as well as his family, and his care team.

It can be assumed, that the Visual Timeline of ADLs occupation was meaningful and
purposeful by teaching Brandon about his responsibilities while doing something he enjoys to do (coloring). By changing the occupation from cutting and taping to coloring, Brandon was more engaged in the occupation. This increased sustained attention and active participation demonstrated that the occupation was more meaningful to him. It was a good way to demonstrate to Brandon, that we may have to do things we do not want to, but there are ways to make those things more enjoyable. It was also important to Brandon to please others around him. By learning the concepts of the timeline, Brandon may be able to function more independently and with less defiant behavior. When Brandon follows directions without several verbal cues, his care team members are pleased, bringing meaning and self-worth to Brandon.

Another way the Visual Timeline of ADLs occupation was meaningful and purposeful was because it focused on routine. Brandon thrived on routine and had difficulty coping with changes in routine. The Visual Timeline of ADLs occupation was a way to show both Brandon and his parents an example of what his daily routine could be. The timeline showed Brandon that he has certain expectations he needs to complete in order to have free-time to draw. It is assumed it was meaningful to Brandon to see that if he completes these expectations in the allotted times, he would have plenty of time to draw. Similarly, it was meaningful to his parents to see how being consistent with a daily schedule could ease the transitions between activities because everyone is aware of how long each activity should take, and what comes next. This concept was carried-over into the intervention of constructing a visual routine chart (Appendix F).

This visual routine chart did not show how much time each occupation should take; rather, it showed what the expectations were for Brandon for the morning, afternoon, and
evening. This again promoted consistency and allowed Brandon to see any changes to his routine before they happen. The pieces were all removable and changeable, depending on what the plans were for the day. Brandon’s mother was instructed to change the chart each night and show Brandon his expectations the night before. Therefore, the Visual Timeline of ADLs occupation used in conjunction with the visual routine chart was meaningful and purposeful to Brandon and his care team because it allowed Brandon to have time to cope with his expectations and changes to his routine which lead to greater independence and overall successful interactions throughout the day.

Assessment information. Valuable assessment information was gained through observation of the occupational performances before and after the changes were implemented. During the initial occupational performance in the home environment Brandon demonstrated behaviors consistent with the results of the OT PAL and Sensory Profiles. For example, Brandon had difficulty coping with me coming into his home to do work instead of the clinic. This was a change to what his normal routine would be, and therefore Brandon did not want to participate in the occupation I had planned. Secondly, Brandon was distracted by his favorite toys in his house. He was unable to hold his attention to the occupation, and no learning was observed. Overall, the initial occupation took increased time because of Brandon’s defiant behavior and the need for maximal verbal encouragement from me and his mother to participate. Furthermore, Brandon was not motivated to engage in the occupation involving cutting and taping construction paper, and therefore the occupation was not meaningful to him.

After I implemented the changes, Brandon became more motivated to participate. He
did not need repeated directions or encouragement to complete the task. He was able to sustain his attention to the occupation until it was completed. It can therefore be assumed that giving Brandon the opportunity for choice in addition to staying consistent to his expected routine promotes increased success. However, using the reward of getting to draw when he was finished did promote Brandon to rush the occupation. This behavior is consistent to Brandon’s effort while at school. I observed Brandon asking what he could do when he was finished with his school assignment, and then rush through the assignment in order to have time to draw. It can be assumed that by setting a time expectation for Brandon’s work, he will be less likely to rush.

**Compensations and/or adaptations.** This occupation itself represents a potential for compensation for Brandon in the use of the visual timeline and visual routine chart to organize his performance or to avoid anxiety related to changes in routine or daily expectations. Brandon and his mother were instructed use the visual routine chart to map out the next day’s events each evening. In the second attempt at this occupation, Brandon demonstrated the adaptations of engaging in a task not of his own choosing, sustaining his attention on a task to completion, and demonstrating understanding of the temporal aspects of his daily routine including how long his activities should take each day, and that when they are done properly, he will have more time to participate in free-time/play. With continued use, he might demonstrate further adaptation of independent completion of routines and accepting changes to the routine when he was notified prior to that day.
Re-synthesis of the occupational form. In this case study, I had the opportunity to re-synthesize the occupational form of the Visual Timeline of ADLs occupation. The changes were the setting in which therapy was conducted, the reduction of auditory and visual distractions, and the implementation of choice and reward. All of these changes to the occupational form resulted in increased occupational performance and increased levels of meaning and purpose during this occupation. However, if I were to re-synthesize the occupational form again, I would set a timer to show how much time Brandon needed to commit to doing his work before receiving his reward.

As a result of the success of the re-synthesized Visual Timeline of ADL occupation, similar changes were implemented in all of Brandon’s typical settings. These changes and the results of the changes will be further discussed in the outcome section of this case study.

Outcomes

As a result of the six weeks of intervention during the Capstone case study, Brandon made progress toward his goals as follows:

(1) LTG: To demonstrate increased independence at school Brandon will complete all individual work without asking for answers after verbal instructions from the teacher 50% of the time. Per teacher report, goal was partially met. Brandon has shown increased independence during morning work.

(1) STG: Brandon will sit in an individual area to complete individual assignments 100% of the time with minimal verbal cues to relocate. Per teacher report, goal met.
(2) LTG: Brandon will complete assignments individually and without tantrums with the use of headphones or music 3/5 days at school, reflecting decreased anxiety. **Per teacher report, goal met with use of music being played in the classroom.**

(2) STG: Brandon will wear headphones or listen to music during morning work with minimal verbal cues to comply 100% of the time **Goal met.**

(3) LTG: Brandon will brush his teeth following a visual chart with minimal verbal cues for thoroughness 100% of the time, reflecting increased attention to self-care tasks. **Goal met.**

(4) LTG: Brandon will actively participate in physical choices during recess at school 100% of the time. **Per teacher report, goal partially met (50% of the time).**

(5) LTG: Brandon will attend weekly organized sport practice with minimal verbal cues for encouragement 50% of the time. **Goal discharged. Parents did not want to sign Brandon up for an organized sport.**

  (5) STG: Brandon and his parents will choose an organized sport for Brandon to participate in as evidenced by signing up for the program. **Goal not met. However, Brandon and family now frequent the park after school for increased physical activity.**

(6) LTG: Brandon will follow directions with minimal verbal cues 50% of the time, reflecting decreased negativity in response to changes in routine. **Goal met.**

  (6) STG: Brandon will participate in the construction of a visual timeline with moderate verbal cues and physical demonstration from OT for instructions 100% of the time. **Goal met.**
(7) LTG: Brandon finish work within 25 minutes with minimal verbal cues 3/5 days, reflecting increased sustained attention. **Goal met.**

(7) STG: Brandon will utilize therapy ball seating and headphones during homework with minimal verbal cues to comply 3/5 days. **Goal Partially Met.** Brandon utilizes therapy ball or air disc while completing desk work at the clinic. Air disc attempted at school with successful outcomes. Follow-up required to check if parents have purchased equipment.

(8) LTG: Brandon’s parents will identify and participate in intensive home health services in order to have carry-over following discharge from the case study by week six of intervention. **Goal met.**

**Re-Evaluation Scores**

In addition to the progress toward measurable goals, the OT PAL observation portion and the Sensory Profile Teacher’s Questionnaire were utilized to assess the progress Brandon made throughout the six weeks of augmented occupational therapy intervention. The OT PAL and Sensory Profiles were first used one week prior to the start of the six weeks of intervention in order to direct the plan of care and goals to be set for the following weeks. Along with observation and unstructured interviews, the assessments were essential for providing insight to the most common barriers to Brandon’s occupational performance across environments. The assessments also served the purpose of setting baseline scores that could be used to measure progress made post six weeks of intervention. The re-evaluation was also important to show areas in which Brandon did not show progress and/or little progress and therefore would be areas for continued growth.

The information provided by the observation portion of the OT PAL and the Sensory Profile Teacher Questionnaire yielded the most relevant information for determining goals and
intervention plans. Therefore, in order to best measure the progress made, the OT PAL observation section (See Appendix I) and the Sensory Profile Teacher Questionnaire (see Appendix J) were re-administered during week six of intervention (along with observation and unstructured interviews).

According to observations, unstructured interviews with Brandon’s teacher, and the results of the OT PAL assessment, Brandon made progress toward improved occupational performance. Within the volition section of the assessment, Brandon remained consistent with his previous scores except for noticeable improvement in “staying engaged,” “discontinuing activities with the teacher’s directions,” “self-directed engaging with peers,” and “following social rules” categories. During the re-evaluation, it was observed that when Brandon sat on an air disc cushion provided through this case study, his sustained attention drastically increased compared to the initial evaluation. His teacher made efforts to reduce classroom noise by playing soft classical music, dimming the lights, greeting the students with a whisper, and reminding them to keep quiet while doing their work. With these simple changes, it was evident that Brandon was able to concentrate on his morning work and complete it on his own in a reasonable amount of time. However, other sources of distraction arose as it was observed that Brandon picked at himself (scabs and nose) constantly throughout the day. He was also observed playing Spiderman during class lectures/assignments.

Another area of improvement from the initial evaluation was in the area of self-directed behaviors. It was observed that Brandon’s teacher did not have to use as many verbal prompts to get Brandon to follow directions and begin or end an assignment. On the other hand, Brandon refused to participate in a music class dance. He immediately told the music teacher
that he did not want to do it. The teacher gave him the option to just stand in the circle and sing along and that he did not have to go in the middle of the circle alone like the other students. Brandon stood slightly away from the other students and told them he was not going to go in the middle when they tried to choose him as a dancing partner. From this observation, it can be assumed that Brandon is still experiencing high levels of anxiety that prevent him from being able to participate in group activities. This is an area for continued growth. However, Brandon was showing progress by choosing to interact with peers at his table group more. He also raised his hand more frequently to participate in the class assignments.

In the habits and routines section of the assessment, Brandon showed significantly improved behaviors. Brandon’s scores increased in the “demonstrates routines”, “adheres to routines”, and the “maintains belongings” categories. The most notable improvement was in the “maintains belongings” category. Throughout the intervention phase, it was observed that it was difficult for Brandon to put his toys away or to be able to concentrate when they were within sight. However, during the re-evaluation Brandon kept all of his personal belongings in his book bag and cubby hole and asked permission to go and get them during “free-time.” It was still difficult for Brandon to transition from drawing to work time. He continued to require repeated verbal prompts from his teacher. He also continued to frequently ask if he is allowed to draw, or when will he be allowed to draw. Brandon’s teacher had just put the restriction on drawing in place, and it is predicted that it will take several more weeks for Brandon to get used to the new routine.

The final section of the OT PAL assessment is dedicated to the student’s roles. Similar to the previous sections, Brandon did show improvement in a few of the categories. Brandon
remained consistent in the “demonstrates student role” and the “assumes school related roles” categories. However, he did show progress in the “transitions smoothly between roles” and the “responds to diverse roles” categories. Brandon’s teacher reported that she is still concerned that he does not interact with others as much as his classmates do, but that he is making steps in the right direction. It is hoped that with continued help and support, Brandon will continue to demonstrate growth and development in all of the categories of MOHO.

The Sensory Profile Teacher Questionnaire was re-administered in order to measure Brandon’s progress with sensory integration and self-regulating behavior. When comparing Brandon’s scores from the initial Sensory Profile evaluation to the scores of the re-evaluation, it was evident that the changes made to the school environment promoted improved occupational performance. Although Brandon remained in the same score bracket for “registration” (more than others) and “avoiding” (much more than others) as the initial evaluation, he did improve from the probable difference into the typical performance score bracket for “seeking” and “sensitivity” quadrants.

The next section of the Sensory Profile is dedicated to examining sensory regulation skills relating to the 4 school factors or classroom behaviors. Brandon remained in the probable difference category for the factor which represents the student’s need for external supports. Students such as Brandon who score in the probable difference category (more than others) need extra sensory input to activate their high thresholds. Brandon did however move from the probable difference (more than others) to the typical performance score in the factor that relates to the student’s attention in the learning environment. This was an important category to Brandon and his care team. Lack of attention to task has been a major concern throughout
Brandon’s life, especially when related to school work. For the factor which relates to tolerance for stimulation, Brandon remained in the much more than others: definite difference category. Children who score in the definite difference category for this factor typically have difficulties getting instructions, completing individual work, and/or cooperating with others due to their small range of tolerance for variability within the learning environment. It was made evident that Brandon continued to struggle with “avoiding” behaviors, possibly due to feeling overloaded at home and at school. The only school factor that Brandon scored in a more problematic category was the factor related to being available for learning. He moved from the more than others: probable difference into the definite difference category. Students who have similar scores in this factor may seem distant/disconnected throughout the school day. Again, this may contribute to Brandon’s avoiding participating in group work or recess.

The last sections of the Sensory Profile are the raw scores for auditory, visual, movement, touch, and behavior. Brandon improved in the auditory, visual, and movement categories. He was given the same score as the initial evaluation in the touch category and a slightly lower score (still in the definite difference bracket) in the behavior category. It is likely that it will take time for Brandon to adjust to the changes resulting from this case study before seeing improved behaviors.

Brandon’s interventions were geared toward reaching greater levels of independence for him and reducing stress on his family. It is at the core of the occupational therapy practice that increasing one’s independence leads to greater meaning and purpose in one’s life. It can therefore be assumed that working with Brandon and his family to find ways to increase his independence during ADLs was both meaningful and purposeful. During the evaluation phase, it
was observed that Brandon finds great meaning and self worth from pleasing others. He consistently asks his teachers, therapist, and parents if what he did made them happy or if he did a good job. Overall, Brandon’s parents were most concerned with his defiant behaviors and lacking academic skills. More specifically, Brandon was relying on others to complete his school work. Consequently, several of Brandon’s intervention plans and goals related to increasing his independence during school work. By separating Brandon during individual work he was no longer able to rely on the other students in his group for answers. Brandon’s parents also followed this example by not giving him answers during homework time. As a result, Brandon showed progress with completing work on his own as evidenced by a decrease in learned-helplessness behaviors while at home and in school. This increase in independence relating to responsibility with academics both pleases Brandon’s care team and promotes a better quality of life for Brandon in his academic future.

Another main component of meaning and purpose for Brandon and his family was the decrease in Brandon’s anxiety related to school work and routine changes. The levels of anxiety that Brandon was experiencing throughout a typical day was hindering him from successful occupational performance during ADLs. Perhaps when Brandon felt over-challenged by academics and felt anxiety, he would ask others to do the work for him. By showing Brandon that he could do his own work and that he did not need to rely on others, he gained confidence and motivation and experienced a decrease in anxiety. It can also be assumed that by increasing the amount of physical activity in both the school settings and while at home contributed to lowering Brandon’s levels of anxiety. Along with increasing physical activity, Brandon’s teacher implemented a reward system for getting to draw after showing complete
and quality work. It was observed throughout the six weeks of intervention that Brandon felt anxiety with trying to rush through tasks in order to have time to draw. By assuring Brandon that he would have time to draw if he completed his work correctly, Brandon was able to slow down and take his time during school related tasks, which led to decreased levels of anxiety. Lastly, by implementing a visual routine chart for Brandon and his family, Brandon was able to see and understand what his expectations were for the day. By minimizing the occurrences of unexpected change, Brandon was able to cope better and showed a decrease in negative behaviors while at home and in school. Therefore, the visual routine chart was meaningful and purposeful to Brandon, his family, his teachers, and his care team because Brandon was able to increase his participation and decrease his negative behaviors and anxiety during various activities in his typical environments. This increase in successful occupational performance ultimately leads to a better quality of life for Brandon and his care team.

All of Brandon and his family’s treatment plans were geared toward improvement in activities across all settings. It was both meaningful and purposeful to all of Brandon’s care team to have everyone on the same page with Brandon’s behaviors, intervention strategies, progress made, and areas for continued growth. Brandon and his family were working with many different professionals, all of which could not observe Brandon in other settings due to liability issues. For example, Brandon’s occupational therapist was not able to observe Brandon in his home or school environment. Therefore it was both unique and helpful for someone to be able to observe, assess, and interact with Brandon across all of his typical environments and report findings to each professional involved in his care. I was able to make suggestions for improved occupational performance in all settings, therefore creating greater carry-over across
all settings. It can be inferred that it was extremely meaningful to Brandon’s family to have someone as a “go-to” for helpful strategies and questions, as well as have someone who was able to discuss Brandon’s barriers to other professionals involved in his care. After the six weeks of intervention, all of Brandon’s care team was more informed of Brandon’s barriers across settings as well as suggested strategies to improve his performance. However, even though progress is being made there is still room for growth and development for Brandon. Brandon’s teacher stated that her overall main concerns remain to be, “Completing work, following directions, and interacting with others”. These concerns, along with the plan for Brandon’s discharge from the pediatric case study will be discussed in further detail in the conclusions section.

Discharge

Discharge Recommendations

Upon completion of the case study, discharge planning was conducted with Brandon’s mother and the capstone site mentor. It was explained to Brandon’s mother upon agreeing to participate in the case study that Brandon would be receiving six weeks of additional services. During the discharge discussion, it was recommended that Brandon continue receiving his usual occupational therapy services once per week at the outpatient clinic. In order to prepare Brandon for his transition back to clinical occupational therapy services only, both I and my site mentor explained to Brandon one week prior to discharge that he would not be working with me anymore and that it would just be my site mentor again. We explained that he would have one more week with me and then after that he would come to the clinic and work with my site mentor, just like they used to before the case study. Brandon confirmed he understood and
was thankful for the time I had spent with him.

During the discharge discussion, it was also recommended that Brandon and his family continue with the various compensatory strategies for the home environment introduced during the case study. More specifically, it was recommended to continue with the use of visual charts for completing various activities and reducing anxiety due to routine changes, to continue to seek out and try ways to increase Brandon’s physical activity throughout the day, to purchase and use a air-disc seating cushion for school work related tasks or while at school, and to separate Brandon from his siblings and keep electronics turned off during homework time thereby creating a more quiet environment.

During the re-evaluation in the school setting, it was observed that several of the recommendations made were being used with successful results. Therefore, during the discharge discussion it was recommended that Brandon’s usual therapist (the capstone site mentor) and Brandon’s parents should follow-up with his teacher or to ask Brandon if the strategies are still being used and are still helpful to Brandon. It was recommended that Brandon’s teacher should continue to play music and dim the lights in the morning, keep allowing Brandon to have individual seating arrangements, continue the rule of doing 3 laps during recess, and to continue to enforce a system for allowing drawing time throughout the school day for good, quality work. Lastly, during the re-evaluation at Brandon’s school, it was observed that Brandon was constantly fidgeting with his hands, which was a distraction for him. Therefore, it was recommended to my site mentor that she explore the use of a hand fidget that Brandon could have in his pocket during school to keep his hands busy in a more socially acceptable way.
The last component of the discharge discussion consisted of the recommendation to continue with the intensive in-home therapy services I had referred the family to after having discussions with Brandon’s mother about her concerns with parenting strategies. It was my belief that this service was a good transition from having the additional services during the case study and Brandon’s parents agreed. Brandon’s parents benefited from having an individual who could observe Brandon in multiple settings, and who could provide suggestions for those settings. Brandon’s mother reported that she really liked having a “go-to” person for suggestions, and with in-home services she could continue to have someone who could provide their professional help in multiple settings. By continuing with in-home services, Brandon and his family were still able to receive additional services when the case study concluded. All of Brandon’s care team and Brandon were happy with the results of the case study and understood the information provided to them regarding discharge planning. They all felt comfortable with the conclusion of the case study and verbally agreed to the discharge plan.

After discussing the plans for discharge, an arrangement for a follow-up meeting two weeks after the conclusion of intervention was scheduled. The follow-up meeting took place at the clinic in the waiting room while Brandon was in his occupational therapy session. We decided it would be less confusing to Brandon to not see me at the clinic after just telling him he was finished working with me. I met with Brandon’s mother to discuss the results of his re-evaluation, summarize his progress made throughout the case study, and to check-in to see how things had been going since our last session together. During the meeting, Brandon’s mother reported that the in-home services were going well, and that Brandon had really taken a liking to the individual who had been working with him. She also said that they have been
practicing using the visual routine chart with in-home services. The meeting concluded with Brandon’s mother saying that things were going in the right direction.

**Discussion**

When comparing the pre- and post- assessments that were completed and reviewing his progress toward therapy goals, results indicated that Brandon demonstrated notable improvements in his occupational performance in targeted areas that had long been problematic for Brandon and his family. Therefore, it appears that the interventions and compensatory strategies implemented throughout the case study were successful. In addition to Brandon’s improved performance, as a result of the case study, Brandon’s entire care team is more informed of his common behaviors and functional barriers across settings. By informing Brandon’s care team of these common behaviors, barriers, and his progress made throughout the case study, they were all able to provide stronger carry-over among settings as well as greater consistency of strategies and approaches used to promote increased occupational performance.

Results also indicated that the use of TEACCH techniques, the Family-Centered Care approach, MOHO, and SI theory can all be used in collaboration with one another in order to provide a holistic intervention approach across multiple environments. Although TEACCH services are designed for individuals with Autism, several of the techniques can be applied to treat a child with ADHD. Specifically, teaching family members ways they can setup the environment for their child’s success, providing parent-child support and social groups with other children with similar diagnoses. This idea directly relates to the Family-Centered Care approach by recognizing the importance of involving the entire family in the intervention
process. By doing so, there is greater chance for full-family satisfaction and improved family dynamics. Both MOHO and the SI theory provided guidelines for evaluations, goal-setting, intervention planning, treatment, and discharge recommendations. By choosing MOHO as a model of practice and including components consistent with SI theory, I was able to obtain important information through observation and interviews in a variety of Brandon’s typical environments.

This case study provided support for the use of these approaches; however, there should be more research on the use of TEACCH techniques for children with ADHD and other behavioral or cognitive disorders. Another area that calls for further research from this case study is the use of physical activity occupations to promote decreased levels of anxiety for children with ADHD. The results of this case study indicate that using techniques from TEACCH and increasing physical activity (among other interventions) resulted in improved occupational performance and behavior across settings for a child with ADHD, but further research should be conducted to explore the effectiveness of these treatment approaches.

In closing, this case study highlights the importance of the occupational therapist recognizing each and every client as unique with individual needs. The case study included an innovative approach to treating a client across all settings using multiple approaches in order to gain a more holistic view of the client in his typical environments. This case study should serve as a reminder to the occupational therapy professionals that each client could be expected to perform differently in many different environments (i.e. school, home, therapy, etc). Therefore, by making the effort to keep all members involved well-informed and up-to-date on their performance during occupational therapy in addition to asking/observing (when possible)
about performance in other typical settings, the occupational therapist can help provide the best patient/family care possible. In conclusion, this case study provides a strong suggestion that it would benefit the professional of occupational therapy to allow the occupational therapist to be involved with the pediatric clients care across all settings.
Acknowledgements

Completion of this case study would not have been possible without the guidance and support from several very important individuals and organizations. A sincere thank you to Brandon and his family for so generously accepting to participate in the case study and for allowing me to participate in so many different activities with them during this semester. Thank you to Bellamy Elementary school, especially Danielle Mortensen for allowing me access to Brandon’s classroom, for participating in this case study, and for being so open to trying occupational therapy intervention suggestions for Brandon during school. Additional thanks are warranted to Olive Hollinger at the TEACCH Center for contributing valuable knowledge of the TEACCH program to be implemented in this case study. I could not have completed this case study without the strong mentorship from Lindsey Love, OTR/L and Dr. Alexia E. Metz, OTR/L, thank you both for your continued support and patience throughout the semester. Thank you to New Hanover Regional Medical Center and Oleander Rehabilitation in Wilmington, North Carolina for allowing me excess to a pediatric occupational therapy clinic thereby supporting the University of Toledo’s Occupational Therapy Doctorate Capstone Experience. Lastly, a heartfelt thank you to my family and friends for their support and emotional guidance, that without I could not have taken or completed this opportunity in North Carolina.
References


Bruce, M. A. G. and B. A. Borg (2002). *Psychosocial Frames of Reference: Core for Occupation-Based Practice*. Thorofare, NJ, SLACK Incorporated


Appendix A

The TEACCH program was developed in the early 1970’s in North Carolina by Dr. Eric Schopler (1927-2006), a professor of psychiatry and psychology at the University of North Carolina-Chapel Hill (The University of North Carolina, 2012). The TEACCH program uses evidence-based practice to help educate individuals of all ages with a diagnosis of ASD and their families for greater life-long success. The TEACCH program provides many clinical services including diagnostic evaluations, parent training and parent support groups, social play and recreational groups, individual counseling, and supported employment.

TEACCH begins with a complimentary initial consultation to discuss the family’s concerns and needs and to determine if an evaluation is an appropriate next step. If an evaluation is deemed appropriate, the TEACCH center will perform a caregiver interview, review the client’s medical history documents, and complete either a half or a full day testing session. During the testing session, the client is directly assessed using the Autism Diagnostic Observation Schedule or ADOS (Lord, Rutter, DiLavore, & Risi, 1999) and The Childhood Autism Rating Scale or CARS (Schopler, Van Bourgondien, Wellman, & Love, 1988). The results of the assessments are summarized and mailed directly to the family, and an individualized care plan is designed, depending on the client’s needs.

The TEACCH intervention sessions are divided into categories by age: birth to age 5 years-old, school age, and adults. For the purposes of this case study, details of the TEACCH interventions for school-aged children include Individual parent-child teaching sessions, social skills group sessions, and intensive-need sessions. The intensive-needs sessions are for
individuals who have, “significant behavioral or emotional difficulties and have limited options for receiving services from other providers in their community” (The University of North Carolina, 2012).

The following PowerPoint presentation was delivered to the pediatric rehabilitation staff of New Hanover Regional Medical Center as an outcome of the mentored studies portion of this capstone project.

Mentored Studies Presentation
**Objectives**

- After the presentation participants will be able to:
  1. Identify the 3 main components of Capstone
  2. Verbally list 3/6 types of Capstone projects
  3. Verbally list 3/6 TEACCH clinical services
  4. Identify 1 intervention for each age group that TEACCH can provide
  5. Name 1 resource for TEACCH information

**Overview of Capstone**

- The Capstone Semester begins after completing level II fieldwork

- The Capstone Experience has two main phases:
  - Planning phase and the Capstone semester

- The Capstone Semester has three main components:
  - a practicum, mentored studies, and dissemination through a formal paper and a formal presentation.
During the Capstone Experience, students typically have at least two mentors:
- A professional at the site of the practicum and a University of Toledo Occupational Therapy Doctorate Program faculty mentor
- Site mentor
- Faculty mentor

Types of Capstone
- Case Study**
- Program Development Plan
- Program Modification
- Course Development
- Advocacy Plan
- Research
Mentored Studies

- Annotations assignment
- Portfolio assignment
- Professional presentation at Capstone site
  - Reflection of something learned during Capstone

...The TEACCH Program!

TEACCH

- Treatment and Education of Autistic and related Communication handicapped Children
- “TEACCH is an evidence-based service, training, and research program for individuals of all ages and skill levels with autism spectrum disorders”
- Established in the early 1970s by Eric Schopler

(TEACCH Autism Program, 2012)
TEACCH

- Clinical Services:
  - Initial referral and consultation
  - Evaluation
  - Parent support and education
  - Intervention
  - Supported employment
  - Professional consultation and training

Initial Referral and Consultation

Appointment Type: Consultation
Duration: typically 1 hour
Center Availability: All Centers
Fee: NO COST
Insurance or Medicaid Accepted: N/A
Financial Assistance Available: N/A

- To make a referral: Complete the forms and mail or fax them to your local TEACCH Center
**Evaluation**

**Appointment Type:** Clinical Evaluation  
**Duration:** 6 hours  
**Center Availability:** All Centers  
**Fee:** Currently offered free to North Carolina families  
**Insurance or Medicaid Accepted:** N/A  
**Financial Assistance Available:** N/A

Assessment for autism spectrum disorders performed by a licensed psychologist and other trained TEACCH Staff

**Parent Support and Education**

**Appointment Type:** Support/Education Group  
**Duration:** 1 to 2 hours  
**Center Availability:** Varies by Center  
**Fee:** NO COST  
**Insurance or Medicaid Accepted:** N/A

- Parent Lecture Series on Autism and Structured Teaching
- Group Parent Teaching Sessions for "High Functioning" Children with Autism
- Support and Discussion Groups for Parents
Intervention

- 1. Children birth to 5 years of age
- 2. School aged children
- 3. Adults

Intervention: Birth to 5

- Early Intervention In-Home Sessions
- Individual Parent-Child Teaching Sessions
- Early Intervention Group Sessions
- Social Skills Groups
  - Vary from $25 a session to $50
Intervention: School-Aged

- Individual Parent-Child Teaching Sessions
- Social Skills Groups
- Intensive-Needs Sessions
  - typically have significant behavioral or emotional difficulties and have limited options for receiving services from other providers in their communities
  - $25-$75 a session

Intervention: Adult

- Adult Psychoeducational Sessions
  - provide an opportunity for adults with autism spectrum disorders to discuss matters of personal importance such as relationships with others or work
- Individual Parent-Adult Teaching Sessions
- Support Groups
- Social Skills Groups
- Supportive Employment
- Intensive-Need Sessions
  - No Cost-$75 a session
Supportive Employment

- Chapel Hill and Greensboro Centers
- Mission of the Supported Employment Program:
  “To provide a stable and predictable work environment whereby the individual with ASD Spectrum Disorder (ASD) can, as independently as possible, be a contributing member of the work force.”

| Chapel Hill: To make a referral please contact Mike Chapman Director of Supported Employment Services Phone: (919) 966-8194 Email: mikechapman@unc.edu | Greensboro: To make a referral please contact Glenna Osborne Assistant Director of Supported Employment Services Phone: (336) 334-5773 ext. 207 Email: glenna_osborne@med.unc.edu |

Professional Consultation and Training

- Onsite Professional Consultation
  - TEACCH provides consultation services to local school systems, group homes, and other agencies providing services to individuals with autism spectrum disorder and their families
  - Rates start at $90/hour
- Contracted Training for Professionals
  - On-site training developed according to your organizations needs
- Workshops for Parents and Professionals
Resources

- http://teacch.com/
  - About Us
  - Clinical Services
  - Regional Centers
  - TEACCH Training
  - Support TEACCH
  - Publications
  - Resources
  - Contact Information
- News...33rd Annual TEACCH Conference, May 31 & June 1 in Chapel Hill, NC

TEACCH CENTERS

North Carolina TEACCH Centers
- Asheville Center
- Chapel Hill Center
- Charlotte Center
- Fayetteville Center
- Greensboro Center
- Greenville Center
- Wilmington Center
OK...Can you.....

1. Identify the 3 main components of Capstone?
2. Verbally list 3/6 types of Capstone projects?
3. Verbally list 3/6 TEACCH clinical services?
4. Identify 1 intervention for each age group that TEACCH can provide?
5. Name 1 resource for TEACCH information?
Appendix B

OT PAL Assessment Form

<table>
<thead>
<tr>
<th>Student</th>
<th>Date of birth</th>
<th>Grade: 2nd</th>
</tr>
</thead>
<tbody>
<tr>
<td>School:</td>
<td>Teacher:</td>
<td></td>
</tr>
<tr>
<td>Therapist:</td>
<td>Date(s):</td>
<td>02/15</td>
</tr>
</tbody>
</table>

The Occupational Therapy Psychosocial Assessment of Learning is a criterion-referenced rating scale and interview for use with children ages 6-12 years. It is designed for use within a school-based setting. Please refer to the manual for administration and scoring procedures. The rating scale is designed to be completed by an occupational therapist, with any behaviors not observed marked N/O. Teacher input via interview is expected to provide information on any areas not observed. Please refer to "Specific Rating Scale for Each Item" located in the back of the manual for clarification of items.

**Rating Scale**

- **N/O** = Not observed
- **Competent (4)** = Competent performance that supports independent functioning and leads to positive outcomes. Assessor observes no evidence of a problem.
- **Questionable (3)** = Questionable performance that places independent functioning at risk and leads to uncertain outcomes. Assessor questions the presence of a problem. 
- **Ineffective (2)** = Ineffective performance that interferes with independent functioning and leads to undesirable outcomes. Assessor observes a mild to moderate problem.
- **Deficient (1)** = Deficient performance that impedes independent functioning and leads to unacceptable outcomes. Assessor observes a severe problem.

<table>
<thead>
<tr>
<th>1. Making Choices—Student chooses to:</th>
<th>not observed</th>
<th>competent</th>
<th>questionable</th>
<th>ineffective</th>
<th>deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Begin an activity when given directions by an adult.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments: Consistently begins an activity when directed by an adult, but consistently asks what he could do upon finishing before beginning.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Begin an activity in a self-directed manner when appropriate.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments: Requires many verbal prompts from teacher to begin.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Stay engaged throughout an activity; continue to expend effort to complete it.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments: Becomes distracted or frustrated with peers easily. Rushes in order to draw.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## I. Making Choices—Student chooses to:

<table>
<thead>
<tr>
<th></th>
<th>not observed</th>
<th>competent</th>
<th>questionable</th>
<th>ineffective</th>
<th>deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Continue with activity or transition to new activity when given directions by an adult.</td>
<td></td>
<td>N/O 4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>E. Discontinue an activity when given directions by an adult.</td>
<td></td>
<td>N/O 4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>F. Discontinue an activity in a self-directed manner when appropriate.</td>
<td></td>
<td>N/O 4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>G. Engage in activity/conversation within a peer group when given directions by an adult.</td>
<td></td>
<td>N/O</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>H. Engage in activity/conversation within a peer group in a self-directed manner when appropriate.</td>
<td></td>
<td>N/O</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I. Follow social rules (e.g., sharing materials, taking turns)</td>
<td></td>
<td>N/O 4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>J. Show preferences (likes/dislikes) for activities.</td>
<td></td>
<td>N/O 4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
## II. Habits and Routines—The student:

<table>
<thead>
<tr>
<th></th>
<th>not observed</th>
<th>competent</th>
<th>questionable</th>
<th>ineffective</th>
<th>deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Demonstrates school routines comparable to peers.</td>
<td>N/O</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>A.</td>
<td>Comments:</td>
<td>Being the ability to keep up w/ classmates, but at times he struggled + needed assistance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>Adheres to school day.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>B.</td>
<td>Comments:</td>
<td>Blenden likes routine during school day &amp; becomes upset when there is a change.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td>Completes activities in a timely manner.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>C.</td>
<td>Comments:</td>
<td>Blenden almost completes activities w/in time guideline, but depends on other classmates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.</td>
<td>Maintains desk in a manner in keeping with classroom routines.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>D.</td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.</td>
<td>Maintains personal belongings in keeping with classroom routines.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>E.</td>
<td>Comments:</td>
<td>comic books; colored pencils; green lantern ring were all items that were asked to be put away</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F.</td>
<td>Organizes assignments and projects in keeping with classroom routines.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>F.</td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.</td>
<td>Completes smooth transitions between routine activities (i.e., efficiently ends and begins another).</td>
<td>N/O</td>
<td>4</td>
<td>X</td>
<td>2</td>
</tr>
<tr>
<td>G.</td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### III. Roles — The student:

<table>
<thead>
<tr>
<th></th>
<th>not observed</th>
<th>competent</th>
<th>questionable</th>
<th>ineffective</th>
<th>deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>Demonstrates a well-established student role (i.e., accepts teacher's authority, asks for help appropriately).</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>Demonstrates smooth transition between roles (i.e., switches smoothly from leader to follower).</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td>Responds acceptably to diverse roles adopted by others.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D.</td>
<td>Assumes roles consistent with classroom/school expectations.</td>
<td>N/O</td>
<td>4</td>
<td>(3)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Description of Environment During Observation

- **Activities observed:** Morning Work, Math, Science
- **Other activities available to the student:** Free-time — Drawing or reading
- **Lighting and noise level:** Fluorescent lighting & very noisy
- **Number of children:** 20
- **Number of adults:** Teacher: 1, OT
- **Record any other items of significance, including anything that differs from completion of the Environmental Analysis Form:**
  - Student always asks what to do when finished before beginning task.
  - Student appears distracted — not actively engaged in classroom lectures/discussions.
  - Relies on others to complete work.
  - "Wiggles & fidgets" in chair often.
<table>
<thead>
<tr>
<th>Student: Brandon</th>
<th>Date of birth:</th>
<th>Grade: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>School:</td>
<td>Teacher:</td>
<td></td>
</tr>
<tr>
<td>Therapist:</td>
<td>Date(s): 2/15/12</td>
<td></td>
</tr>
</tbody>
</table>

**Rating Scale**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O</td>
<td>Not observed</td>
</tr>
<tr>
<td>Competent (4)</td>
<td>Competent performance that supports independent functioning and leads to positive outcomes. Assessor observes no evidence of a problem.</td>
</tr>
<tr>
<td>Questionable (3)</td>
<td>Questionable performance that places independent functioning at risk and leads to uncertain outcomes. Assessor questions the presence of a problem.</td>
</tr>
<tr>
<td>Ineffective (2)</td>
<td>Ineffective performance that interferes with independent functioning and leads to undesirable outcomes. Assessor observes a mild to moderate problem.</td>
</tr>
<tr>
<td>Deficient (1)</td>
<td>Deficient performance that impedes independent functioning and leads to unacceptable outcomes. Assessor observes a severe problem.</td>
</tr>
</tbody>
</table>

### Occupational Therapy Psychosocial Assessment of Learning (OT PAL)

#### Summary Table

<table>
<thead>
<tr>
<th>Rating</th>
<th>Viclition</th>
<th>Habits and Routines</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td></td>
<td>(7)</td>
<td>(8)</td>
<td>(9)</td>
</tr>
<tr>
<td></td>
<td>(10)</td>
<td>(11)</td>
<td>(12)</td>
</tr>
</tbody>
</table>

**OT PAL Matrix**
### Appendix C

<table>
<thead>
<tr>
<th>Factor</th>
<th>Factor Raw Score Total</th>
<th>Typical Performance</th>
<th>Probable Difference</th>
<th>Definite Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sensory Seeking</td>
<td>40/85</td>
<td>85-----------------63</td>
<td>62-----------------55</td>
<td>54-- X-------------17</td>
</tr>
<tr>
<td>2. Emotionally Reactive</td>
<td>32/80</td>
<td>80-----------------57</td>
<td>56-----------------48</td>
<td>47-- X-------------16</td>
</tr>
<tr>
<td>3. Low Endurance/Tone</td>
<td>N/A/45</td>
<td>45-----------------39</td>
<td>38-----------------36</td>
<td>35-----------------9</td>
</tr>
<tr>
<td>4. Oral Sensory Sensitivity</td>
<td>25/45</td>
<td>45-----------------33</td>
<td>32-----------------27</td>
<td>26X-----------------9</td>
</tr>
<tr>
<td>5. Inattention/Distractibility</td>
<td>17/35</td>
<td>35-----------------25</td>
<td>24-----------------22</td>
<td>21-- X-------------7</td>
</tr>
<tr>
<td>6. Poor Registration</td>
<td>28/40</td>
<td>40-----------------33</td>
<td>32-----------------30</td>
<td>29X-----------------8</td>
</tr>
<tr>
<td>7. Sensory</td>
<td>19/20</td>
<td>20X----------------16</td>
<td>15-----------------14</td>
<td>13-----------------4</td>
</tr>
</tbody>
</table>

Sensory Profile Caregiver Questionnaire Results
<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Sedentary</th>
<th>8/20</th>
<th>20----------12</th>
<th>20----------12</th>
<th>9----------4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Classifications are based on the performance of children without disabilities (n=1,037).

* Bolded number or X indicates Brandon’s score

Appendix C, continued

Sensory Profile Caregiver Questionnaire Results
## Appendix D

Sensory Profile Teacher Questionnaire Results

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Less Than Others</th>
<th>More Than Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Auditory Processing</td>
<td>19/40</td>
<td>40---------------30</td>
</tr>
<tr>
<td>2.</td>
<td>Visual Processing</td>
<td>25/45</td>
<td>45---------------32</td>
</tr>
<tr>
<td>3.</td>
<td>Vestibular Processing</td>
<td>37/55</td>
<td>55---------------48</td>
</tr>
<tr>
<td>4.</td>
<td>Touch Processing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Multisensory Processing</td>
<td>23/35</td>
<td>35---------------27</td>
</tr>
<tr>
<td>6.</td>
<td>Oral Sensitivity Processing</td>
<td>33/60</td>
<td>60---------------46</td>
</tr>
<tr>
<td>7.</td>
<td>Sensory Processing Related to Endurance/Tone</td>
<td>N/A/20</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Modulation Related to Body Position and Movement</td>
<td>41/50</td>
<td>50---------------41</td>
</tr>
<tr>
<td>9.</td>
<td>Modulation of Movement Affecting Activity Level</td>
<td>18/35</td>
<td>35---------------23</td>
</tr>
<tr>
<td>10.</td>
<td>Modulation of Sensory Input Affecting Emotional Responses</td>
<td>9/20</td>
<td>20---------------16</td>
</tr>
<tr>
<td>11.</td>
<td>Modulation of Visual Input Affecting Emotional Responses and Activity Level</td>
<td>14/20</td>
<td>20---------------15</td>
</tr>
<tr>
<td>12.</td>
<td>Emotional/Social Responses</td>
<td>41/85</td>
<td>85---------------63</td>
</tr>
<tr>
<td>13.</td>
<td>Behavioral Outcomes of Sensory Processing</td>
<td>14/30</td>
<td>30---------------22</td>
</tr>
</tbody>
</table>

* Classifications are based on the performance of children without disabilities (n=1,037).

* Bolded number or X indicates Brandon’s score
<table>
<thead>
<tr>
<th>Quadrant</th>
<th>Raw Score Total</th>
<th>Definite Difference</th>
<th>Probable Difference</th>
<th>Typical Performance</th>
<th>Probable Difference</th>
<th>Definite Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Registration</td>
<td>58/85</td>
<td>***</td>
<td>85</td>
<td>84−−−−−64</td>
<td>63−−X−53</td>
<td>52−−−−−17</td>
</tr>
<tr>
<td>2. Seeking</td>
<td>40/60</td>
<td>***</td>
<td>****</td>
<td>60−−−−−43</td>
<td>42−X−34</td>
<td>33−−−−−12</td>
</tr>
<tr>
<td>3. Sensitivity</td>
<td>48/80</td>
<td>80−−−−79</td>
<td>78−−−−69</td>
<td>68−−−−−51</td>
<td>50−X−41</td>
<td>40−−−−−16</td>
</tr>
<tr>
<td>4. Avoiding</td>
<td>49/85</td>
<td>***</td>
<td>****</td>
<td>85−−−−−70</td>
<td>69−−−−−61</td>
<td>60−X−17</td>
</tr>
</tbody>
</table>

* Classifications are based on the performance of children without disabilities (n=1,037).
** Bolded number or X indicates Brandon’s score
***There is no Definite Difference than others score for this quadrant
****There is no Probable Difference score for this quadrant
<table>
<thead>
<tr>
<th>School Factor</th>
<th>Raw Score</th>
<th>Definite Difference</th>
<th>Probable Difference</th>
<th>Typical Performance</th>
<th>Probable Difference</th>
<th>Definite Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. School factor 1</td>
<td>71/105</td>
<td>**</td>
<td>****</td>
<td>105------79</td>
<td>78------64</td>
<td>63------21</td>
</tr>
<tr>
<td>2. School factor 2</td>
<td>39/65</td>
<td>**</td>
<td>65------64</td>
<td>63------44</td>
<td>43------34</td>
<td>33------13</td>
</tr>
<tr>
<td>3. School factor 3</td>
<td>50/85</td>
<td>**</td>
<td>****</td>
<td>85------70</td>
<td>69------61</td>
<td>60------17</td>
</tr>
<tr>
<td>4. School factor 4</td>
<td>35/55</td>
<td>**</td>
<td>****</td>
<td>55------42</td>
<td>41------35</td>
<td>34------11</td>
</tr>
</tbody>
</table>

* Classifications are based on the performance of children without disabilities (n=1,037).
** Bolded number or X indicates Brandon’s score
***There is no Definite Difference than others score for this quadrant
****There is no Probable Difference score for this quadrant

Appendix D, continued
Sensory Profile Teacher Questionnaire Results Continued
<table>
<thead>
<tr>
<th>Section</th>
<th>Raw Score Total</th>
<th>Definite Difference</th>
<th>Probable Difference</th>
<th>Typical Performance</th>
<th>Probable Difference</th>
<th>Definite Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Auditory</td>
<td>24/50</td>
<td>***</td>
<td>50</td>
<td>49--38</td>
<td>37--31</td>
<td>30-X-10</td>
</tr>
<tr>
<td>2. Visual</td>
<td>31/55</td>
<td>***</td>
<td>55--53</td>
<td>52--39</td>
<td>38--31</td>
<td>30--11</td>
</tr>
<tr>
<td>3. Movement</td>
<td>40/70</td>
<td>***</td>
<td>****</td>
<td>70--56</td>
<td>55--48</td>
<td>47-X-14</td>
</tr>
<tr>
<td>4. Touch</td>
<td>50/60</td>
<td>***</td>
<td>****</td>
<td>60--51</td>
<td>50--45</td>
<td>44--12</td>
</tr>
<tr>
<td>5. Behavior</td>
<td>48/75</td>
<td>***</td>
<td>75</td>
<td>74--58</td>
<td>57--49</td>
<td>48--15</td>
</tr>
</tbody>
</table>

* Classifications are based on the performance of children without disabilities (n=1,037).
** Bolded number or X indicates Brandon’s score
*** There is no Definite Difference than others score for this quadrant
**** There is no Probable Difference score for this quadrant

Appendix E

Suggestions made for intervention plans

(1) Strategies to increase Brandon’s individual work throughout the school day.
a. Assign individual work area/desk for Brandon during individual work assignments and tests.

b. Implement a classroom-wide discussion on the importance of doing one’s own work and not looking at other’s papers.

c. Have all students put up folders to hide their work during tests.

d. Implement more individual work and decrease peer group work. For example, explain directions and have students complete their work versus the teacher going step by step through the assignment and answers.

(2) Strategies to decrease noise distractions during morning work.

a. Brandon to be allowed to listen to ear buds/headphones or music played in the classroom during morning work.

b. Implement a class wide rule of “quiet time” while students arrive, take their seats and work on morning work.

c. Teacher to greet students with a whisper and remind them to be quiet during morning work.

(3) Strategies to inform Brandon of his free-time/after work choices, and to decrease drawing as a choice to avoid rushing through school work.

a. Limit drawing time to after morning work and at the end of the day only.

b. Create a visual chart with after work choices (i.e. reading, doing homework, writing, etc).

(4) Strategies to increase Brandon’s physical activity throughout the school day.

a. Implement movement breaks throughout the day (i.e. stand up and do 10 jumping jacks).
b. Implement a no drawing during recess rule.

c. Mandatory 3-laps around the playground before being allowed to participate in “free-play.”

d. Implement learning more group dances during music class.

(5) Strategies for increasing Brandon’s physical activity after school, preferably by enrolling in organized sport for both physical and social skills.

a. Weekly trips to the local parks to play on the playground with siblings.

b. Movement breaks at home (i.e. outside play, chair sit-ups, wall push-ups, carry heavy laundry basket, taking out trash, etc).

(6) Strategies for increasing attention to task: Implement the use of headphones with no-word music and therapy ball seating during homework time to increase attention to task.

a. Download classical music onto pre-owned MP3 player for homework time.

b. Play music from the television stereo during homework time.

c. Purchase a large exercise ball or air-disc seat to use while completing homework.

(7) Strategies for increasing attention to task separate Brandon from siblings and TV during HW to decrease distractions and decrease amount of time it takes to finish HW.

a. Begin having both school-aged children complete homework at the same time while implementing “quiet time” rule.

b. Have the father engage with two siblings in another room with the door shut while Brandon completes homework with mother at the living room desk.
c. Mandatory rule that the television and all gaming systems be turned off during homework time.

d. Have Brandon complete homework in his room with supervision and the door closed while siblings play in another room.

(8) Occupational therapy student and Brandon constructed a visual timeline with ADLs to show Brandon what typical daily time demands are for him throughout a typical day.

(9) Occupational therapy student fabricated a daily routine chart for use in the home to guide and prepare Brandon of his daily tasks and to have visual preparation for any changes that may occur in his day.

(10) Occupational therapy student constructed a visual chart for teeth brushing steps/thoroughness.

(11) Occupational therapy student made referral to Brandon’s mother and father for a professional who focuses on parenting skills for parents with children who have special needs (i.e. disciplining suggestions).
Appendix F
Visual Timeline Chart

* The bottom section with colored construction paper represents “Visual Timeline of ADLs” #1

* The top section with the boxes drawn in and labeled represents “Visual Timeline of ADLs” #2
Appendix G

Daily Visual Routine Chart
Appendix H

Visual Teeth Brushing Chart
Appendix I

OT PAL re-evaluation

### Occupational Therapy Psychosocial Assessment of Learning (OT PAL)

<table>
<thead>
<tr>
<th>Student:</th>
<th>Biardon</th>
<th>Date of birth:</th>
<th>Grade:</th>
</tr>
</thead>
<tbody>
<tr>
<td>School:</td>
<td>Bellamy</td>
<td>Teacher: Mortensen</td>
<td>2nd</td>
</tr>
<tr>
<td>Therapist:</td>
<td>Kendra</td>
<td>Date(s):</td>
<td>04/02</td>
</tr>
</tbody>
</table>

The Occupational Therapy Psychosocial Assessment of Learning is a criterion-referenced rating scale and interview for use with children ages 6-12 years. It is designed for use within a school-based setting. Please refer to the manual for administration and scoring procedures. The rating scale is designed to be completed by an occupational therapist, with any behaviors not observed marked N/O. Teacher input via interview is expected to provide information on any areas not observed. Please refer to “Specific Rating Scale for Each Item” located in the back of the manual for clarification of items.

### Rating Scale

- **N/O** = Not observed
- **Competent (4)** = Competent performance that supports independent functioning and leads to positive outcomes. Assessor observes no evidence of a problem.
- **Questionable (3)** = Questionable performance that places independent functioning at risk and leads to uncertain outcomes. Assessor questions the presence of a problem.
- **Ineffective (2)** = Ineffective performance that interferes with independent functioning and leads to undesirable outcomes. Assessor observes a mild to moderate problem.
- **Deficient (1)** = Deficient performance that impedes independent functioning and leads to unacceptable outcomes. Assessor observes a severe problem.

#### I. Making Choices—Student chooses to:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Competent</th>
<th>Questionable</th>
<th>Ineffective</th>
<th>Deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Begin an activity when given directions by an adult.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>min v/c</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Begin an activity in a self-directed manner when appropriate.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>Requires repeated v/c to begin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Stay engaged throughout an activity; continue to expend effort to complete it.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>Noted sustained attention w/ music w/ min v/c to complete work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distraeted by scabs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix I, continued

#### OT PAL re-evaluation continued

<table>
<thead>
<tr>
<th>I. Making Choices—Student chooses to:</th>
<th>not observed</th>
<th>competent</th>
<th>questionable</th>
<th>ineffective</th>
<th>deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Continue with activity or transition to new activity when given directions by an adult. Comments:</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>E. Discontinue an activity when given directions by an adult. Comments:</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>F. Discontinue an activity in a self-directed manner when appropriate. Comments:</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>G. Engage in activity/conversation within a peer group when given directions by an adult. Comments: engages w/ peer group in sharing group, refusal to participate in group music class chores.</td>
<td>N/O</td>
<td>4</td>
<td>X</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>H. Engage in activity/conversation within a peer group in a self-directed manner when appropriate. Comments: min. verbal participation in group discussions</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>I. Follow social rules (e.g., sharing materials, taking turns) Comments: raises hand</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>J. Show preferences (likes/dislikes) for activities. Comments: strong dislikes</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
## II. Habits and Routines—The student:

<table>
<thead>
<tr>
<th>Habit/Activity</th>
<th>Not Observed</th>
<th>Competent</th>
<th>Questionable</th>
<th>Ineffective</th>
<th>Deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Demonstrates school routines comparable to peers.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Adheres to routines within the school day.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Completes activities within time guidelines (e.g., finishes assignments/tasks in a timely manner)</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Increased time to finish morning work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Maintains desk in a manner in keeping with classroom routines.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Maintains personal belongings in keeping with classroom routines.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Organizes assignments and projects in keeping with classroom routines.</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Completes smooth transitions between routine activities (i.e., efficiently ends and begins another)</td>
<td>N/O</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix I, continued

OT PAL re-evaluation continued

III. Roles — The student:

<table>
<thead>
<tr>
<th>A. Demonstrates a well-established student role (i.e., accepts teacher's authority, asks for help appropriately). Comments:</th>
<th>Not observed</th>
<th>Competent</th>
<th>Questionable</th>
<th>Ineffective</th>
<th>Deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Demonstrates smooth transition between roles (i.e., switches smoothly from leader to follower). Comments: Improved leader role noted.</th>
<th>Not observed</th>
<th>Competent</th>
<th>Questionable</th>
<th>Ineffective</th>
<th>Deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C. Responds acceptably to diverse roles adopted by others. Comments: Avoids certain classmate</th>
<th>Not observed</th>
<th>Competent</th>
<th>Questionable</th>
<th>Ineffective</th>
<th>Deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D. Assumes roles consistent with classroom/school expectations. Comments:</th>
<th>Not observed</th>
<th>Competent</th>
<th>Questionable</th>
<th>Ineffective</th>
<th>Deficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/O 4 3 2 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description of Environment During Observation

Activities observed: Morning Work, Music Class, Math, Recess

Other activities available to the student: Drawing

Lighting and noise level:

Morning: soft, classmate music, playing, decreased noise level noted, lighting in morning

Number of children: 18
Number of adults: 2

Record any other items of significance, including anything that differs from completion of the Environmental Analysis Form:

- Student utilized airdisc seating who
  - Student picked itself a lot during school
  - Student stated he having nightmares
- Hand fracet
Appendix I, continued
OT PAL re-evaluation continued

### Occupational Therapy Psychosocial Assessment of Learning (OT PAL)

#### Summary Table

<table>
<thead>
<tr>
<th>Student: Brandon</th>
<th>Date of birth:</th>
<th>Grade: 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>School:</td>
<td>Teacher: Mrs M</td>
<td>Date(s): 04/02</td>
</tr>
</tbody>
</table>

#### Rating Scale

- **N/O**: Not observed
- **Competent (4)**: Competent performance that supports independent functioning and leads to positive outcomes. Assessor observes no evidence of a problem.
- **Questionable (3)**: Questionable performance that places independent functioning at risk and leads to uncertain outcomes. Assessor questions the presence of a problem.
- **Ineffective (2)**: Ineffective performance that interferes with independent functioning and leads to undesirable outcomes. Assessor observes a mild to moderate problem.
- **Deficient (1)**: Deficient performance that impedes independent functioning and leads to unacceptable outcomes. Assessor observes a severe problem.

#### Ratings

<table>
<thead>
<tr>
<th></th>
<th>Volition</th>
<th>Habits and Routines</th>
<th>Roles of the student</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**O = Re-evaluation scores from 04/02/2012**

**□ = Initial evaluation scores from 02/15/2012**

OT PAL Manual
### Appendix JSensory Profile re-evaluation: Teacher Questionnaire Results

* Classifications are based on the performance of children without disabilities (n=1,037).

<table>
<thead>
<tr>
<th>Quadrant Raw Score Total</th>
<th>Less Than Others</th>
<th>More Than Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Definite Difference</td>
<td>Probable Difference</td>
</tr>
<tr>
<td>Registration</td>
<td>53/85  ***</td>
<td>85</td>
</tr>
<tr>
<td>Seeking</td>
<td>44/60  ***</td>
<td>****</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>52/80  80--------79</td>
<td>78--------69</td>
</tr>
<tr>
<td>Avoiding</td>
<td>48/85  ***</td>
<td>****</td>
</tr>
</tbody>
</table>

** Bolded number or X indicates Brandon’s score
***There is no Definite Difference than others score for this quadrant
****There is no Probable Difference score for this quadrant
Appendix J, continued
Sensory Profile re-evaluation: Teacher Questionnaire Results

<table>
<thead>
<tr>
<th>School Factor Raw Score Total</th>
<th>Definite Difference</th>
<th>Probable Difference</th>
<th>Typical Performance</th>
<th>Probable Difference</th>
<th>Definite Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. School factor 1 71/105</td>
<td>***</td>
<td>****</td>
<td>105------79</td>
<td>78--X------64</td>
<td>63------21</td>
</tr>
<tr>
<td>2. School factor 2 44/65</td>
<td>***</td>
<td>65------64</td>
<td>63------44</td>
<td>43------34</td>
<td>33------13</td>
</tr>
<tr>
<td>3. School factor 3 50/85</td>
<td>***</td>
<td>****</td>
<td>85------70</td>
<td>69------61</td>
<td>60--X-----17</td>
</tr>
<tr>
<td>4. School factor 4 30/55</td>
<td>***</td>
<td>****</td>
<td>55------42</td>
<td>41------35</td>
<td>34--X-----11</td>
</tr>
</tbody>
</table>

* Classifications are based on the performance of children without disabilities (n=1,037).
** Bolded number or X indicates Brandon’s score
***There is no Definite Difference than others score for this quadrant
****There is no Probable Difference score for this quadrant
Appendix J, continued
Sensory Profile re-evaluation: Teacher Questionnaire Results Continued

<table>
<thead>
<tr>
<th>Section Raw Score Total</th>
<th>Less Than Others</th>
<th>More Than Others</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Definite Difference</td>
<td>Probable Difference</td>
</tr>
<tr>
<td>6. Auditory</td>
<td>27/50</td>
<td>*** 50</td>
</tr>
<tr>
<td>7. Visual</td>
<td>35/55</td>
<td>*** 55------53</td>
</tr>
<tr>
<td>8. Movement</td>
<td>46/70</td>
<td>*** ****</td>
</tr>
<tr>
<td>9. Touch</td>
<td>50/60</td>
<td>*** ****</td>
</tr>
<tr>
<td>10. Behavior</td>
<td>39/75</td>
<td>*** 75</td>
</tr>
</tbody>
</table>

* Classifications are based on the performance of children without disabilities (n=1,037).
** Bolded number or X indicates Brandon’s score
***There is no Definite Difference than others score for this quadrant
****There is no Probable Difference score for this quadrant
Annotated Bibliography


The Publication Manual of the American Psychological Association has been designed to establish and continue a uniform set of procedures and style rules for scientific communication. The uniform style and rules help to read literature quickly for key points and to ensure that essential information is included in the document. Beginning in 2006, the APA began to revise the manual in collaboration with many experts and professional groups.

The APA Manual was utilized throughout my Capstone experience to ensure all of my documents and final paper follow the correct format.


In this 3rd edition of Psychosocial Frames of reference, the authors sought to better reflect how occupational therapist address the psychosocial concerns of each individual. The authors recognize the need to educate clinicians and students to intervene with persons whom have mental illnesses. This edition is the first to describe the theoretical basis for intervention in addressing psychosocial constructs as they impact the individual’s ability to engage in meaningful occupations. The book also includes multiple and diverse models of practice that can be applied to mental health occupational therapy.

This guide to psychosocial frames of reference was a vital resource for me during my pediatric Case Study. It helped me identify relevant models of practice for my client as well as provide more information on the Model of Human Occupation.

This revised edition of Willard & Spackman highlights the advances in knowledge in occupational therapy and occupational science since the 10th edition from 5 years prior. The authors were encouraged to include more information about occupational science and the occupational nature of human beings. This 11th edition includes current trends in the field regarding the focus on occupation as the basis for practice as well as continuing to be an encyclopedic guide.

This textbook contains a wealth of knowledge and evidenced-based practice guidelines that I used during my Capstone experience. The book has units on: Occupation and disability, OT values and beliefs, OT evaluation and intervention, it has sections devoted to MOHO, and much more. This text book was a valuable resource for me as I worked on my goals and objectives for my Capstone.


The Sensory Profile Caregiver Questionnaire is a standardized assessment designed to measure the sensory processing of children ages 3-10 per caregiver report. By choosing how often a child demonstrates the listed behaviors, the results will identify processing deficits in the sensory system that may lead to functional barriers to occupational performance. Caregivers rate one hundred and twenty-five items on a 1 (always) to 5 (never) point likert scale. Items are factored into 3 sections: Sensory Processing, Sensory Modulation and Behavioral and Emotional sections.

Scores that fall within 1 standard deviation of the mean for each category represent, “Typical Performance.” Scores that fall between 1 to 2 standard deviations of the mean represent, “Probable Difference.” Scores that are more than 2 scores from the mean illustrate a “Definite Difference” from the norm.
The Sensory Profile Caregiver Questionnaire was chosen to gain a more holistic view of the client’s pre-determined sensory integration difficulties. The client has been seen by an occupational therapist in the past for sensory integration difficulties, but there was no clear picture of which sensory systems were being affected. By using the Caregiver Questionnaire I was able to gain insight from the parent’s perspective and use the results to compare/contrast with my observations and his teachers perspectives. This evaluation tool was instrumental in identifying which sensory systems were being affected, how the client was interpreting the sensory stimuli, how the client was adapting to the everyday sensory stimuli, and what the reaction was of the client and how this reaction affected his daily occupational performance.


The Sensory Profile School Companion is the school-based version of the Sensory Profile. Similar to the Caregiver Questionnaire, the School Companion targets children ages 3-11 in order to assess how sensory processing affects the child while in the school environment. The assessment is a judgment based evaluation that is to be filled out by the client’s teacher. The School Companion questionnaire consists of 62 items that are rated by the teacher on the frequency of behaviors (always-never) demonstrated on a 1-5-point likert scale. The Sensory Profile School Companion has 3 domains; Environmental Sensations, Body Sensations, and Classroom Behaviors. The child’s scores are rated as, “Similar to Others,” indicating a score within 1 standard deviation of the mean, “Less Than Others-Probable Difference,” which indicates scores 1-2 standard deviation below the mean, “Much Less Than Other-Definite Difference,” which indicates scores more than 2 standard deviations below the mean, “More Than Others-Probable Difference,” indicating scores between 1 and 2 standard deviations above
the mean, and “Much More Than Others-Definite Difference,” indicating scores 2 or more standard deviations above the mean.

Similar to the Sensory Profile Caregiver Questionnaire, the School Companion was indicated to use in order to gain the teacher’s perspective of the client’s sensory processing skills while in the school environment. One limitation to the Sensory Profile Caregiver Questionnaire and the School Companion is that they are both reported by others and can be biased, based on the perceptions of the parent or teacher. By using both profiles in conjunction with one another, I was able to see patterns of behavior across settings. Most of the client’s biggest limitations were directly related to school work, and therefore it was essential to gain insight both by unstructured observation in the school setting, as well and a standardized assessment from the teacher’s perspective.


This workbook is designed to help therapist develop stronger documentation skills. The author describes both the SOAP format and the Patient/Client Management note format. The book includes valuable information including, but not limited to: Medical terminology, abbreviations, formatting (writing each section of the S.O.A.P), goal writing, and planning interventions.

Although this workbook is designed for physical therapist, it is completely applicable to occupational therapist as well. I used this book as a guide for documentation during my Case Study. The workbook includes many pages of written exercises that helped me with writing notes, goals and interventions for my patient during the Capstone experience.

In this revised edition, Dr. Kielhofner sought to restore balance between occupational therapy practice and the fields’ commitment to using occupation as a means of rehabilitation. The book focuses on 8 well-known models and describes the conceptual foundation, current status and the future of the practice of occupational therapy.

This text provided me structure for analyzing various models of practice for my Capstone. It helped me compare different approaches and decide which models were most applicable for intervention planning. I was also able to draw information from the models of practice chosen to promote evidence-based practice.


A systematic review of the literature related to performance difficulties for children and adolescents with difficulty processing and integrating sensory information was completed as part of the evidence-based literature review project of the American Occupational Therapy Association. The review focused on functional performance difficulties that these children may exhibit in areas of occupation. The results suggest that children and adolescents with difficulty processing and integrating sensory information do exhibit performance difficulties in areas of occupation.

This systematic review was helpful with consolidating the results of several studies related to children and adolescents with sensory integration issues. It allowed me to use evidence-base results to support my use of the Sensory Integration model of practice for my pediatric case study. The focus of my pediatric case study was related to school work and routine, which are
both areas of functional performance shown to be difficult for children and adolescents with
difficulty processing and integrating sensory information, similar to the client in this case study.


The purpose of this study was to determine whether sensory overresponsivity (SOR) is related to elevated levels of anxiety in children with ADHD. Twenty-four children ages 6-10 with ADHD and 24 children without ADHD participated in the study. Parents of these participants completed a Revised Children’s Manifest Anxiety Scale (RCMAS) with their child. Results showed that children with ADHD and SOR were significantly more anxious then those with ADHD only or no ADHD diagnosis.

This article was used in my Capstone Case Study to provide evidence-based results of a correlation between ADHD and anxiety disorder. The patient the case study was focused on has a diagnosis of ADHD and anxiety. It was important to show that children diagnosed with ADHD may have a comorbid disorder of anxiety that could have direct influences on that child’s occupational performance.


The purpose of this article was to review the main concepts of the newly-developed Family Centered Care approach within Family-Centered Services (FCS). The review article has 4 main purposes. The first section presents a brief review of the history and ideas behind FCS. Second, the authors present a new framework of FCS. The third purpose was to review the research evidence that support FCS and to identify where additional research is needed. Lastly, the
implications for services providers of FCS and the potential uses of FCS as a guide for teaching and research were explored.

This article was useful in the case study to provide rationale for using a family centered approach to pediatric therapy intervention. The review article enabled me to use evidenced-based research when designing and implementing occupation therapy services for a child with special needs while encouraging involvement from his parents in order to promote increased child-parent relationships.


The purpose of the paper was to explore the importance of family daily routines and rituals for the family’s functioning and sense of identity. Information on family morning routines was derived from 40 families with children with disabilities in the United States and Canada. Topics for the interviews included the family’s story, daily routines, and particular occupations. Data on the morning routines of the families were analyzed for order and affective and symbolic meaning using a narrative approach. The findings are presented as narratives of the morning routines in five families. The conclusion of the paper was that family routines and rituals are organizational and meaning systems that may affect family’s abilities to adapt them.

This paper was useful to explain the importance of having family routines, especially for families with children with disabilities included. This paper showed examples of what typical families with children with various disabilities morning routines were and how they adapted those routines for higher occupational performance throughout the day. The child in this case study has ADHD and one of the families greatest concerns were his difficulties with routine and
routine changes. I used this paper as a reference for guiding my suggestions for interventions relating to routines and rituals in this case study.


The website is dedicated to providing a wealth of information on the TEACCH (Treatment and Education of Autistic and Related Communication-handicapped Children) program including its origination, mission statement, clinical services offered, locations of TEACCH programs, TEACCH training services/opportunities, how one can support the TEACCH program, and the website also includes links to publications and resources relevant to TEACCH.

This website assisted with learning more about the TEACCH program while providing me evidenced-based support for the use of this model. By navigating the website, I was also able to learn more about the services offered through TEACCH, and the common assessments used for evaluating potential clients. By learning more about TEACCH, I was also able to project how TEACCH and occupational therapy services could be used in conjunction with one another to treat an individual with autism and how the model could be applied for children with ADHD.


The OT PAL is a school-based, comprehensive assessment developed for an occupational therapist that focuses on psychosocial skills and addresses the match between the student and his/her environment. The OT PAL is designed to assess students between the ages of 6-12 in an elementary school setting. The OT PAL was developed in response to the critical need for an
assessment of psychosocial and environmental factors associated with a student who is having difficulty meeting functional expectations and roles in the classroom. The assessment involves a pre-observation, observation/assessment, rating scale, teacher, student and parent interviews, and summary table. The OT PAL defines the person as the student; the environment as comprised of the physical objects; the people within the classroom, and the socio-cultural interactions and expectations associated with being a student; and the task as any activity completed within the classroom.

The OT PAL assessment was chosen for the case study after observation and unstructured interviews with the client and his teacher and parents. It was my presumption that the client’s significant functional barriers to occupational performance were related to psychosocial and environmental factors while in the school environment. By using this evaluation tool, I was able to remain consistent with the MOHO approach and gain a holistic view of the client by ways of a semi-structured interview with the client, his teacher and his parents relative to their viewpoint of his academic behaviors. By using the OT PAL, I was able to pinpoint the client’s barriers to academic performance and design an intervention plan that targeted the barriers.