Preparing for kindergarten: a unique home and community-based occupational therapy approach

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A Unique Home and Community-Based Occupational Therapy Approach

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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 with developmental coordination disorder and non-verbal learning disabilities are challenged by fine and gross motor coordination tasks as well as visual-spatial-organizational skills required for successful participation and occupational performance in the school setting. Occupational therapy services can address these difficulties and help children feel a sense of accomplishment in various occupations and environments of childhood. This case study implemented a unique home and community based approach in order to prepare a pediatric client with these conditions for all-day kindergarten. The relatively new Cognitive Orientation to daily Occupational Performance (Polatajko & Mandich, 2004) approach was utilized throughout the study, in conjunction with the principles of the model of human occupation (Kielhofner & Burke, 1980). The Bruininks-Osteretsky Test of Motor Proficiency, 2nd edition (BOT-2, Bruininks & Bruininks, 2005), a modified version of the Child Occupational Self-Assessment (COSA, Keller, Kafkes, Basu, Federico, & Kielhofner, 2006), the Performance Quality Rating Scale, and client and parent self-report were used as mechanisms for evaluation and progress measurement. Intervention focused on client-chosen goals related to kindergarten including shooting a basketball, preparing and packing a lunch, donning shoes, appropriate seated posture, and visual-motor integration tasks. Direct intervention and consultation was provided in the clinic, home, and school setting. Overall results indicated improvements in all goal areas in addition to increased client independence. This case study validates the use of unique approaches in occupational therapy that go beyond conventional methods in various environments of childhood outside of the clinic. It is a calling for occupational therapy practitioners to educate themselves about potentially useful therapeutic methods that enhance occupational performance in valued, important childhood occupations.
**Introduction**

This case study describes a unique occupational therapy program designed specifically for improving occupational performance in a pediatric client as he prepared to transition to kindergarten. The client of interest had a diagnosis of developmental coordination disorder, hypotonia, and a newly diagnosed non-verbal learning disability. This study was carried out by Rachel Lorenzo, an occupational therapy doctorate student at The University of Toledo, under site mentorship and clinical supervision of Liza Gleckler, MOT, OT/L and faculty mentorship of Melanie Criss, OTD, OTR/L. For the purposes of this study the names of the patient and his family members were altered and consent forms were completed.

John is a six year old male who lives with his mother, father, and two older sisters. His mother described him as an intelligent, patient, and loving child with an easy going personality. At the time of the case study John attended a developmental kindergarten program Monday through Friday for two and a half hours each morning. Its design offered increased opportunities for the development of skills required in a typical kindergarten classroom including fine and gross motor skills, social interactions, academics, and structured classroom habits and routines. John also attended karate class one time per week and participated in swimming, although swimming was not currently in session at the time of the study. John enjoyed reading, going to the library, playing games with family and friends, bike riding, and building with blocks and trains.

During the time of this case study John was receiving one hour per week of outpatient occupational therapy and one hour per week of outpatient speech language therapy. John’s primary impairments at the time of the study were in the areas of fine and gross motor coordination, childhood activities of daily living, and socialization. John’s mother expressed a desire for increased support in these areas. Successful occupational performance at home, at
school, and in the community would ultimately help ease John’s transition into a traditional kindergarten classroom.

Medical History/Diagnosis

An overview of John’s medical history and diagnosis is worthy of review. Certain developmental milestones were delayed for John. He began walking at twenty-three months of age. No traumatic experiences were reported during early childhood. John was diagnosed with amblyopia and began wearing glasses at age two. No further symptoms related to this condition were significant at the time of the study. At two years of age, John began wearing orthotics to provide foot and ankle support secondary to increased bilateral feet pronation. Tubes were placed in his ears at eleven months and two and a half years of age.

As previously mentioned, John was diagnosed with developmental coordination disorder and a non-verbal learning disability. Developmental coordination disorder is a disorder that begins in early childhood leading to clumsiness and poor coordination. This disorder is typically identified if developmental milestones are delayed and if coordination difficulties are not the result of a general medical condition or pervasive developmental condition (Rogers, 2005). According to the National Institutes of Health (2012), approximately 6% of school-aged children have some form of the disorder. Developmental coordination disorder may exist alone or coexist with other learning disorders as it does for John.

Children with developmental coordination disorder have difficulties with motor coordination skills compared to same-aged peers including gross motor tasks such as hopping, skipping, throwing and catching a ball, and balancing. A child may also struggle with fine motor tasks such as tying shoelaces, buttoning, handwriting, and using scissors. Children with these conditions may also struggle with low self-esteem because of limited skills needed to participate
with peers (Rogers, 2005). These psychosocial issues may lead to limited engagement or social and academic problems. John’s mother further emphasized the importance of socialization as she wanted to prevent John from feeling isolated or frustrated. John presented with gross and fine motor delays indicative of developmental coordination disorder which will be discussed in further detail in the evaluation section.

As mentioned, children with developmental coordination disorder have motor impairments that impact and often restrict academic and activities of daily living. Mandich, Polatajko, and Rodger (2003) further analyzed the impact that developmental coordination disorder has on participation patterns in everyday activities of childhood from the perspective of parents of children with the condition. Findings revealed that incompetence had severe negative effects for the child. It was also suggested that intervention focusing on enabling children at the participation and activity level had significant positive impacts on the child’s overall quality of life. The present case study’s focus on child-driven goals and activity choices helped address this need to enhance participation.

Numerous roles for occupational therapists when working with children with motor delays have been suggested. Individualized treatments revolving around motor skills that are useful in the school environment, such as physical activities that allow for participation and play with peers, as well as success in classroom tasks, are essential (Rogers, 2005). These areas are especially relevant to this case study as a major focus is development of skills that will ease John’s transition to kindergarten.

John was recently diagnosed with a non-verbal learning disability. Learning disabilities are neurological in nature and impact how one learns to read, write, speak, hear, and calculate. According to the National Institutes of Health (2010), fifteen percent of the United States
population, or one in seven individuals have some type of learning disability. It is important to remember that learning disabilities are not a reflection of intelligence but impact how one is able to perform a skill or complete a task (National Institutes of Health, 2010).

It is estimated that only 1-10% of those with a learning disability have a non-verbal form of the condition (Thompson, 1996). Non-verbal learning disabilities are a neurological disorder originating in the brain’s right hemisphere. The name of the disability can be misleading because it does not reflect an inability to speak. Children with non-verbal learning disabilities have trouble recognizing and interpreting nonverbal cues such as facial expressions or gestures into meaningful information, yet often speak eloquently and have a large vocabulary. The child with a non-verbal learning disability may also deviate from normal development in three broad areas: motoric (poor coordination, clumsiness, lack of body awareness), visual-spatial-organizational, and social (awareness and judgment) (Thompson, 1996).

John displays deficits related to his non-verbal learning disability which will also be discussed in the evaluation section of the study. Rogers (2005) also suggests relevant roles for occupational therapists working with young school-aged children with learning disabilities including development of self-help skills, social play, and writing skills. This case study allowed for exploration of interventions that promote both self-help and writing skills.

Models of Practice

The main models of practice that were utilized in this case study were the Cognitive Orientation to daily Occupational Performance (Polatajko & Mandich, 2004) and the model of human occupation (Kielhofner & Burke, 1980). The Cognitive Orientation to daily Occupational Performance (Polatajko & Mandich, 2004), also referred to as the CO-OP approach, was the primary model applied during intervention. The CO-OP approach places a strong emphasis on the role that successful performance in everyday childhood occupations play in healthy
development. The most common childhood diagnoses investigated thus far using the model is developmental coordination disorder (DCD) making it particularly applicable with John.

CO-OP emphasizes interactions that occur during skill development between the person, task, and environment while also recognizing the role that cognition plays in motor learning (Polatajko & Mandich, 2004). It is an approach which can be used as an alternative or supplement to traditional components and remediation based approaches. CO-OP is a client-centered, problem solving, performance-based model. Cooperation is constant between the child, therapist, and parent in order to support learning skills that are meaningful to the child. Due to the learning based nature of CO-OP, it requires motivation on the part of the learner. It recognizes that motor skills, like all skills, are learned. CO-OP is grounded in motor learning and cognitive learning theories and their principles are utilized throughout the approach including analysis of performance problems, feedback, strategy identification, and support of skill acquisition (Polatajko & Mandich, 2004). Overall, the CO-OP model was designed to meet four objectives: skill acquisition, cognitive strategy use through teaching strategies to solve problems, generalization of learning to real world settings, and transfer of learning to similar skills (Polatajko & Mandich, 2004).

Various prerequisites impact the effectiveness of using the model. Prerequisites for the child include three skill goals that the child is willing to work towards. The child must have sufficient language fluency in the form of receptive and expressive language to indicate choices and verbalize strategies and must be able to communicate. The final prerequisite is sufficient cognitive ability accompanied by motivation. CO-OP by nature draws on a child’s cognitive abilities to benefit from the approach, meaning the child can attend and understand enough to
interact with the therapist regarding strategies. Another important cornerstone of the CO-OP approach is parental involvement and a willingness to learn (Polatajko & Mandich, 2004).

The CO-OP protocol includes seven key components called key features which are important to mention. Key feature one is client-chosen goals. The child and parent’s perspective is central in identifying skills to be acquired and ensures relevance and motivation, thus promoting learning. When using CO-OP, goals are three skills that the child wants to learn to perform or perform better. Specified tools are recommended to aid in the goal setting process including a daily activity log and an activity sort which allows the child to talk about his/her activities. The Canadian Occupational Performance Measure (Law et. al., 1998) is recommended as a client-centered instrument to identify goals in the areas of self-care, productivity and leisure, and to measure outcomes. The Performance Quality Rating Scale (Miller, Polatajko, Missiuna, Mandich, & Macnab, 2001) is an observation based rating scale used to measure performance and changes quickly and easily. Slight modifications, which will be discussed in more detail later, were made to evaluation procedures during application of this model to the current case study due to availability of resources and appropriate fit of the instruments to the client.

Key feature two is utilizing dynamic performance analysis. Dynamic performance analysis (DPA) is an observation-based process of identifying performance difficulties. This process is a top-down approach that focuses on actual performance of an occupation and is carried out while observing a performance. The therapist makes careful note of various aspects of the client’s abilities, skills, actions, environmental demands, and how those factors interact. It is completed during baseline, when the child first performs his goal skill for the therapist, and continues throughout intervention. Polatajko, Mandich, and Martini (2000), outlined the
purposes of DPA as identifying where performance breaks down and testing out solutions. They also provided clinical examples and a description of the DPA process to illustrate its application in practice.

Key feature three involves using cognitive strategies in order to help the child learn to think about what to do and how to do it. Strategies are cognitive tools that are put into place to promote learning, memorization, and problem solving. Using this approach, children are taught to think through a performance problem, identify strategies to solve the problem, and apply them. CO-OP is highly verbal and the use of talk between therapist and child as well as self-talk is important (Polatajko & Mandich, 2004).

A global cognitive strategy is used to control and coordinate other strategies. When using CO-OP the GOAL-PLAN-DO-CHECK strategy is used. Discussion of the GOAL includes specification of the skill to be learned, the PLAN involves specifics of skill performance, and the PLAN results in the DO. Once the DO is completed the CHECK can take many forms including comparison, outcome, and/or a consequence. The PLAN can be modified, refined, abandoned, and repeated. Domain specific strategies also exist and are task, child, and situation specific. All specific strategies revolve around verbal guidance and can include body position, attention to doing, task specification/modification, supplementing task knowledge, feeling the movement, verbal motor mnemonic, and verbal rote script (Polatajko & Mandich, 2004).

Key feature four is guided discovery. Guided discovery is used so that children can discover strategies to help solve performance problems themselves. Four catch phrases have been coined as verbal mnemonics for the process of guided discovery. These phrases include One thing at a time!, Ask, don’t tell!, Coach, don’t adjust!, and Make it obvious! When
challenged, the therapist can lead the child to a solution using these strategies. Self-efficacy is promoted when the child can attribute the success to his or herself (Polatajko & Mandich, 2004).

Key feature five is enabling principles. The four principles used throughout intervention included making it fun, promoting learning, working towards independence, and promoting generalization and transfer (Polatajko & Mandich, 2004). Given the collaborative nature of the model these principles are also supported through key feature six which includes parent or significant other involvement. The primary roles of parents are to support skill acquisition of new skills and promote skill generalization through active participation. Parents are asked to attend at least three CO-OP sessions, help identify goals, and participate further as desired.

Key feature seven outlines the intervention. Ten sessions are suggested and have a particular structure; each session is one hour each and is scheduled for one to two times per week. Typically two skills are worked on each session. Throughout the CO-OP process it is important to remember that although specific guidelines exist, CO-OP should be used in a highly individualized fashion depending on the child and skills to be learned (Polatajko & Mandich, 2004).

The CO-OP approach was the primary model of practice selected for this case study because of its unique approach to motor performance and strategies that promote the acquisition of motor-based skills. John fit the prerequisites for the model. Although he had a non-verbal learning disability, he had strong language skills and sufficient cognitive ability. In addition, his supportive family network was an asset. Interview and observation with fellow clinicians suggested that John responds well to verbal strategies, which are a main component of using the CO-OP approach to acquire new skills. In addition, Thompson (1996) suggests that the most successful instructional procedures are those that utilize verbal labeling and teaching.
A growing body of research supports the use of the Cognitive Orientation to daily Occupational Performance approach in occupational therapy intervention, especially for children with motor impairments reflected in developmental coordination disorder. Miller, Polatajko, Missiuna, Mandich, and Macnab (2001) conducted a pilot study comparing the CO-OP approach to contemporary methods of treatment using neuromaturational components-based models for children with developmental coordination disorder (DCD). Twenty children with a mean age of nine participated in the study. Improvements were made using both approaches; however improvements in the CO-OP group were greater. Follow-up data indicated children who took part in the CO-OP group maintained motor goals and acquired strategies for a longer amount of time and parents rated the CO-OP treatment as more successful.

Polatajko, Mandich, Miller, and Macnab (2001) presented a summary of a series of five studies regarding the evaluation of basic tenants, development, and effectiveness of the CO-OP approach for treating children with developmental coordination disorder. In a case study, the potential of a learning model to guide skill acquisition in children with motor impairments was analyzed. Results indicated that strategy use could enable a child with DCD in motor task performance; indicating performance is more likely a learning issue and less likely a neurodevelopmental one. Three other studies addressed generalizability by demonstrating CO-OP was reproducible and effective for a wide variety of skills. Results also indicated that CO-OP techniques were also effectively transferred to other skills. Together studies presented in this review provide strong evidence that CO-OP is an effective approach for children with DCD.

Numerous studies also set out to explore the use of CO-OP with younger children. This literature is of particular relevance because John was only six years old at the time of the study. The work of Mandich, Polatajko, and Miller in 2001 (as cited in Polatajko & Mandich, 2004),
investigated the use of CO-OP in a group of five and six year old children. Children identified goals in collaboration with their parents. All the children made significant gains in printing skills, indicating the potential for CO-OP intervention techniques with a younger age bracket; however methods should be adapted accordingly.

In another study submitted for publication in 2003, Taylor and Mandich (as cited in Polatajko & Mandich, 2004) used a single-case experimental design to explore using CO-OP with children age five to seven. Findings suggested that children were able to learn and use strategies to achieve goals; however modifications had to be made in order to effectively use CO-OP with younger children. Sessions should be varied, shorter, and more repetitious. In order to maintain focus and attention, the younger the child, the more varied each session needs to be. Post-test scores demonstrated that CO-OP was effective. Children as young as five years old could acquire, generalize and transfer skills using cognitive strategies. Other modification recommendations for younger children which were utilized during the case study include increased amounts of play and involvement of parents (Polatajko & Mandich, 2004).

Bernie and Rodger (2004) analyzed the components of a cognitive approach that support performance, specifically the frequency and type of strategies that children used during a CO-OP intervention. Overall, results suggest than strategy use is more related to goals and the individual child than to age. Older and younger children did seem to differ in their use of global and domain specific strategies. Use of cognitive approaches for children under age seven was also supported as the younger children still spent the majority of their time engaged in goal-directed activity. Relevant to intervention with younger children is that they seem to require more time and occasions to develop plans to improve task performance. Additionally, younger children seemed to respond better to higher use of verbal based strategies.
Rodger and Liu (2008) investigated strategy use changes over time during CO-OP intervention. Trends in strategy use and session time were highly child specific emphasizing the client-center, individualized nature of the approach. With regard to this case study and John’s prior positive responses to verbal strategies, it is noteworthy that therapist-directed verbal guidance was used consistently.

The second model of practice taken into consideration for this case study was the model of human occupation (Kielhofner & Burke, 1980). The model of human occupation (MOHO) is occupation-based and client-centered. It recognizes that many factors beyond motor, cognitive, and sensory impairments contribute to occupational performance difficulties. Application of the model is concerned with one’s participation and adaptation in life occupations. The model proposes that a person’s characteristics and the external environment are dynamically linked, occupation reflects the influence of both the person’s characteristics and the environment, and a person’s inner characteristics are maintained and changed through occupational engagement (Kielhofner & Burke, 1980). Humphy (2002) further analyzed childhood occupational engagement and its role in development and a means for change. A key idea was that children organize behaviors around their ideas about outcomes from their occupational efforts. The therapist must strive to recognize the complexity of learning and refining occupations to aide in development and fostering feelings of competency in the child. This includes discovering occupations that are appropriate for the child and what settings promote skill development.

Mandich, Polatajko, and Rodger (2003) analyzed the impact that developmental coordination disorder has on participation in typical occupations of childhood and findings revealed that incompetence has negative effects on the child. Intervention that focused on enabling occupation and participation increased overall quality of life. Feeling competent allows
children to feel accepted in various occupational environments. In addition, allowing the child to take part in goal setting increased self-efficacy. Self-efficacy can lead to increased occupational engagement in meaningful and purposeful occupations, which is a focus of the model of human occupation.

MOHO conceptualizes the person as a combination of three interacting elements: volition, habitation, and performance capacity. Volition refers to motivation for occupation. Habitation respects how one organizes their occupations into routines and roles. Performance capacity refers to one’s ability for performance. MOHO emphasizes that occupation results from an interaction of the inner characteristics of the person with the environment. The environment includes physical, social, cultural, economic, and political features with the context that influences a person. The model examines what a person does on three levels; occupational participation, occupational performance, and occupational skill. Participation refers to engagement in work, play, or activities of daily living that contribute to one’s well-being (Kielhofner & Burke, 1980).

MOHO ascertains that change is driven by a client’s occupational engagement in meaningful and purposeful occupation that shape abilities, roles, routines, and thoughts and feelings about themselves. Evaluation is conducted through informal interview, observation, and standardized assessments. Therapeutic strategies needed to support the change process include but are not limited to validation, identification, feedback, coaching, physical support, structuring, advising, and encouraging (Kielhofner, 2009). These strategies were utilized in a variety of ways during intervention in this case study.

Evidence exists that clinicians are frequently utilizing the model of human occupation in occupational therapy practice. Lee, Taylor, Kielhofner, and Fisher (2008) surveyed a systematic
random sample of 1,000 occupational therapists regarding theories used in practice. More than 80% of respondents said they use the model of human occupation in practice and that its use supports client-centered, holistic, occupation-based, evidence-based practice. The concepts of the model were reported as useful with regard to treatment planning and intervention.

The model of human occupation was chosen as a good fit for this case study because of its focus on developing, remediating, and enhancing performance in meaningful and purposeful occupations in a variety of environments encountered across the lifespan including those of childhood. Ideally intervention is naturalistic and can focus on a variety of areas applicable to this case study including practicing skills, learning new habits to promote occupational performance, planning performance, positively changing roles, and personal feelings of satisfaction and enjoyment.

The model of human occupation stresses the importance of environmental factors that impact occupation and that support successful occupational performance. A major element of this case study involved providing intervention outside the clinic in John’s home and school. Home-based intervention supports the model’s emphasis on natural opportunities for occupational engagement. Hinojosa, Anderson, and Strauch (1988) discussed the relevance of home-based therapy in pediatrics. Various benefits were discussed including solving environmental problems more easily, comfort of parent and child, development of problem-solving relationships, and ease of including family in interventions.

MOHO also emphasizes the roles and routines that support health and occupational engagement. The therapist considers what roles the patient is having trouble fulfilling and how his or her deficits contribute to difficulty filling roles efficiently and consistently. The focus of this case study is on the acquisition of relevant skills in various environments that will aid in the
client’s role transition to a student in kindergarten. Other roles also considered during intervention include son, brother, and friend. The model also stresses the importance of discovering a fit between the person and his or her environment to facilitate successful occupational engagement. To ensure this fit, various environments were explored during intervention including the therapy clinic, school, home, and the community. Finally the client’s routines and habits were reconstructed so the patient could participate in desired and required occupations more efficiently.

Traditional approaches to motor skill learning were also applied during the case study as adjuncts to the CO-OP approach and MOHO in order to address motor-related delays impacting the client’s functioning and participation. Bass-Haugen, Mathiowetz, and Flinn (2008) outline the OT Task-Oriented Approach influenced by recent developmental and motor learning theories. Treatment principles that are applicable include a client-centered approach, active participation of the client, functional tasks as a focus in treatment, an occupation based focus, meaningful and purposeful task selection, a practice structure that fits the type of task, strategy use to enhance motor performance, and utilizing environments that provide feedback. In addition, a strong match between the person, the environment, and the task promotes skill acquisition. Much like CO-OP and MOHO, a task-oriented approach to optimizing motor behavior emphasizes the importance of personal motivation as related to achieving goals and improving performance. Additionally, considering the development of hand skills in relation to learning new motor skills was crucial when addressing John’s fine motor delays. Important considerations included positioning, crossing midline, in-hand manipulation, grasp, tool use, bilateral hand use, and muscle strength (Exner, 2005).
The model of human occupation and the CO-OP approach coincide nicely as they are both client and occupation centered. Each model places a strong emphasis on the role of successful occupational performance as a means for health, development, and well-being. The values, desires, and motivations of the child and parent are reflected through active participation in goal establishment and throughout intervention. MOHO and CO-OP are both grounded in a dynamic systems perspective acknowledging that new skills emerge from child, task, and environmental interactions.

**Uniqueness of Case Study**

Intervention provided in this case study differed from the intervention the child was receiving prior to this case study in a variety of ways. Through Toledo Children’s Hospital, John is seen by the outpatient occupational therapist in the clinic for one hour per week. Typically children are not seen outside the clinic. The case study intervention provided the client with additional occupational therapy services; in the clinic, home, and in his developmental kindergarten classroom.

In addition, this case study is innovative through its use of Cognitive Orientation to daily Occupational Performance (CO-OP). CO-OP is a relatively new treatment approach in occupational therapy designed to help children master a variety of skills. This approach had not previously been utilized with this client and was used in creative ways with other therapeutic strategies.

**Evaluation**

The client of interest for this case study is a 6 year old male with developmental coordination disorder, hypotonia, and a non-verbal learning disability. He attends a developmental kindergarten program five mornings a week. He has been receiving outpatient
occupational therapy services one time per week since December 2010 and also receives outpatient speech therapy services one time per week.

Evaluations completed during the case study were in addition to a thorough chart review which included previous assessments conducted by John’s usual therapist. In accordance with CO-OP and MOHO the evaluation was client-centered and took both the client’s and parent’s perspectives into consideration. Both formal and informal evaluation tools were utilized as part of this process which took place in the clinic, at the client’s home, and in the client’s school.

In order to start getting a picture of the client, an informal questionnaire was created and given to John’s mother. The questionnaire included questions regarding previous benefits of occupational therapy services, child’s strengths, participation and activities, further services desired, medical history, and goals. Reported strengths per John’s mother included his intelligence, reading skills, math skills, and his positive attitude. Activities she reported John had difficulty with included a need for additional cueing to complete tasks and delayed gross and fine motor skills. Favorite activities included playing trains, reading, playing outside, building, games, and play dough.

In order to promote an interdisciplinary team approach, the client was observed during a speech therapy session. The client was attentive and participated well in a one-on-one setting. Speech goals were discussed with the therapist in an effort to increase carryover amongst services. Speech goals that were appropriate for reinforcement during occupational therapy services include maintaining eye contact during conversation and including discussions about the client’s daily activities.

The primary standardized assessment completed was the Bruininks-Osteretsky Test of Motor Proficiency, 2nd edition (BOT-2, Bruininks & Bruininks, 2005). It was conducted at the
Toledo Children’s Hospital Total Rehab clinic. This evaluation was chosen because it is a comprehensive assessment of motor functioning appropriate for children aged 4 years through 21 years. It was used to gain a baseline measure of underlying motor skills. It is comprised of eight subtests: fine motor precision, fine motor integration, manual dexterity, bilateral coordination, balance, running speed and agility, upper-limb coordination, and strength. The subtests are further divided into categories of fine manual control (fine motor precision and fine motor integration), manual coordination (manual dexterity and upper-limb coordination), body coordination (bilateral coordination and balance), and strength and agility (running speed and agility and strength). Administration is done through a standardized protocol which was reviewed prior to conducting the test. The test took three sessions to complete over a three week period. Detailed results of the BOT-2 can be found in Table 1.

Results indicate below average skills in fine manual control, strength and agility, and the total motor composite. John scored below average in the fine manual control category which includes precision pencil and hand skills. Particularly difficult tasks were filling in shapes, drawing lines through paths, and folding paper. Line production during tasks was wavy. Fine motor integration tasks requiring visual motor integration, such as copying shapes, were also difficult. Data also indicated below average skills in strength and agility which included various running, dexterity, and strength-related activities. Overall, BOT-2 scores revealed deficits that warrant intervention related to fine motor coordination, visual-motor integration, and gross motor tasks requiring strength and upper/lower limb coordination (e.g. shooting a basketball).

In order to gain a clearer picture of the client’s participation in everyday environments of childhood, the Home and Classroom Observations Checklists from the Miller Function & Participation Scales (Miller, 2006) were completed by John’s mother and his developmental
kindergarten teacher. These scales were ideal to use because they assess a child’s performance in classroom and school related activities with an emphasis on motor skills. Given the case study’s overall focus of easing John’s transition to kindergarten, these tools were especially useful. The checklists use five categories for reporting participation which include: almost always successful, frequently successful, occasionally successful, seldom successful, and not observed/don’t know. Items are further divided into categories relevant in each environment. The respondent checks the best response according to observation.

The classroom observations checklist completed by John’s teacher revealed additional valuable information. It was reported that John sometimes seeks extra sensation and tends to run a lot in the classroom. At times when in structured social settings, John has a hard time staying on task; needing cues for task completion and multi-step directions. The classroom teacher also reports that John is seldom successful at tying his shoes.

Additional skilled observation and informal interview revealed information about John’s occupational performance in the school setting. A guide to occupational therapy consultation and classroom observation was loosely followed to structure note taking (Hanft & Place, 1996). In this setting John appeared distracted by other students, visual stimuli, and noises. John demonstrated a poor posture for tabletop tasks; at times sitting far away from and not square to his desk. With regard to visual-motor skills, John uses a pencil grip and adaptive rubber band sling to promote a relaxed tripod grasp, which was provided by his usual therapist, although he did not appear to use this device consistently. Without the adaptive rubber band sling device, John is inconsistent in his use of a static tripod grasp or a static quadropod grasp (stabilizes pencil with four fingers) and demonstrates limited dynamic finger movements during writing tasks. In an analysis of writing and drawing samples from school, it was difficult to distinguish
body parts of a person. Letter production was usually legible although large in size and occasionally lines were wavy. The classroom environment offered a wide variety of opportunities for sensory exploration and fine motor development provided through educational and play-based means. Due to space constraints, opportunities for gross sensory motor exercises were limited. Through interview, John’s teacher expressed her main area of concern for John with regard to his transition to kindergarten was the cues he required to focus and complete classroom tasks. Based on observation and discussion, further consultation in the areas of handwriting, provision of new gross and fine motor activities/exercises, and routine/scheduling aides were warranted in the school setting.

The home observations checklist completed by John’s mother indicated frequent success with most mobility related tasks, although she reported a desire for improvement in the areas of balance and coordination. With regard to organization success, “some of the time” was the most common response, indicating a need for help with 3-4 step activities, getting materials, and cleaning. John’s parents assist with brushing his teeth. John does not independently don his shoes when he needs to wear his orthotics.

Assessments were also conducted in accordance with the chosen models of practice. To appropriately apply the CO-OP approach a protocol for evaluation is specified which includes a daily activity log, a pediatric activity card sort, the *Canadian Occupational Performance Measure* (Law et. al., 1998), and the Performance Quality Rating Scale. A daily activity log was completed with the client and parent in order to gain an understanding of the client’s daily routines. A typical day includes a morning routine of getting dressed, brushing his teeth and eating breakfast. In the morning, he goes to school then returns home to eat lunch. In the afternoon, he does homework with his mother. His family eats dinner together and in the evening
he plays games with family members. John’s bedtime routine consists of brushing his teeth, putting on his pajamas, bathing every other day, and reading books.

CO-OP also recommends using a pediatric activity card sort in preparation for goal setting in order to determine a child’s level of occupational engagement. It allows the child to talk about various activities he enjoys. This assessment tool was costly to purchase therefore an appropriate, equivalent assessment tool was suggested by the faculty mentor. The Pediatric Interest Profile: Kid Play Profile (Henry, 2000) was used to gain insight about activities of interest for the client. Additionally, this tool is grounded in the perspectives and beliefs of the model of human occupation that play is a fundamental human occupation, making it an ideal fit. There are 50 activities included in the booklet and for each activity there are three questions asked of the child: 1) Do you do this activity? 2) Do you like this activity? And 3) Who do you do this activity with? Each activity has a picture associated with it and the questions include faces, stars, and other visual prompts to aid in ease of completion for younger children. The profile is divided into sports, outdoor activities, summer activities, winter activities, indoor activities, creative activities, lessons/classes, and socializing activities. The winter activities category was omitted because the assessment was conducted in late winter and intervention would continue into early spring. Results indicate that John enjoys a wide variety of activities. Those of particular interest include sports and outside activities. The client also enjoyed board games, reading, and building. He participates in karate and swimming classes and enjoys both.

Although the CO-OP approach recommends the use of the Canadian Occupational Performance Measure (Law et. al., 1998), the model of human occupation does not advocate for use of that assessment when using MOHO principles. In order to address this theoretical issue, the Canadian Occupation Performance Measure (Law et. al., 1998) was substituted with an
appropriate assessment that could be utilized to gather similar information regarding occupational performance, satisfaction, and importance in order to establish goal areas for intervention. The *Child Occupational Self-Assessment* (COSA, Keller, Kafkes, Basu, Federico, & Kielhofner, 2006) was an adequate replacement tool used to capture the child’s perceptions of his own occupational performance and importance of everyday activities. The checklist version of the assessment which includes pictures was chosen and allowed the client to rate his level of performance in 25 everyday childhood activities as well as his level of performance in each. Each activity is based on a 4 point scale in each area. Performance rating choices range from a “big problem doing this” to “really good at this.” Importance rating choices range from “not really important” to “most important.” There was also opportunity for the child to discuss other activities he thinks he is good at and activities he has a problem with. Appropriate accommodations were made to meet the needs of the child during the assessment. The tool was completed with both the client and his mother together; however it should be noted that care was taken not to consider the client’s mother’s perceptions as the child’s response to COSA items. Additionally, the COSA statements were read out loud to the client. After completion and analysis it appeared that some of the most important activities to the client were doing things with friends and family, school related tasks, and taking care of this personal things. He also indicated that he felt he was doing “ok” with regard to performance in all those areas. This data validated the importance of including family members in intervention and focusing on skills that were school-related.

Once goal areas were decided upon, format of the COSA was further adapted due to the client’s young age. It included a 4-point rating scale in which the child could easily circle his initial performance rating on an individual chart related to each goal/skill area with response
choices ranging from “big problem” to “really good.” It also included a 4-point rating scale in
which the child could rate the goals’ level of importance ranging from “Not really important” to
“Most important.” Please see Appendix A for this adapted “Personal Goal Sheet” performance
and importance rating scale. The client’s mother also completed this rating scale for the three
goal areas in order to establish family-centered care. A parent’s perception of his or her child’s
performance is an important consideration and may enhance intervention and carryover across
environments. Corresponding child and parent self-reported pre-test scores for each goal are
provided in Table 3. Goals will be further discussed in the next section.

The Performance Quality Rating Scale (PQRS) is also used for evaluation purposes
during the CO-OP approach. The PQRS is an observation-based rating scale used to measure
performance quickly and easily. It provides an objective measure in addition to the COSA’s
subjective data. The PQRS is a 10-point rating scale used to rate performance and compare
performance changes over time. When using the PQRS, the child is asked to perform the goal
skill three times and a rating is given. The PQRS is also used to initiate the performance analysis
process. Table 3 provides the pre-test PQRS scores for the three identified goal skill areas. For
each skill area, breakdown during the task were also analyzed and strategies were modified
throughout intervention to address these areas. Further detail about baseline measures and
breakdown points for each goal skill are addressed in the goal section to follow.

Other client observations were made during the overall evaluation process. The clients
diagnosis of hypotonia results in decreased upper and lower extremity strength. Specifically, he
presents with decreased shoulder stability secondary to decreased core and bilateral upper
extremity strength. He has a tendency to round his shoulders, posterior pelvic tilt, and lean his
head forward while seated. These impairments impact both fine and gross motor performance.
During gross motor movements such as skipping and running the patient has difficulty with bilateral coordination and reciprocal arm/leg movements. Other challenging gross motor tasks include those that require visual-motor integration such as shooting a basketball. The client responds well to cues for proper arm/leg movements, but lacks fluidity during these types of activities. Sensory functioning was also assessed. The client wears glasses, but visual acuity is functional. Auditory and vestibular functioning also seemed to be within normal limits; although the client occasionally requires increased auditory processing time. With regard to proprioceptive and kinesthetic awareness, the client demonstrated decreased body awareness and motor planning.

The client has a slightly abnormal gait pattern due to pronated feet and decreased lower extremity strength. He has a decreased heal strike when walking and running. It is assumed that the orthotics may also contribute to this issue.

Further assessment of activities of daily living was completed through observation and informal interview. His mother reported independence with eating and cutting most foods. Occasional assistance from family is provided with brushing his teeth and blowing his nose. He bathes with assistance from a parent. The client does not tie his shoes and when wearing his orthotics requires assistance to put his shoes on. He is occasionally successful with buttoning and unbuttoning; although inconsistent. He dresses himself independently (excluding fasteners). He frequently participates in family routines like setting the table. His mother reports that increased cueing is needed with his morning routine. John demonstrates strong coping skills and handles frustration at an age-appropriate level.

Overall, areas of concern for the client and parents revolved around skills related to transitioning to kindergarten successfully. These areas included gross motor coordination tasks,
specific activities of daily living, routine management with concerns related to motor planning and level of cues required for task completion, and fine motor coordination skills such as visual-motor integration and precision. Numerous strengths of the client were also revealed including his coping skills, hard-working attitude, and easy going demeanor. The client also has a very supportive and encouraging family network in addition to a well-established support staff at school. These are all important as they help aide in skill transfer and promote generalization across the various environments of childhood.

**Goal Setting**

The goal setting process was collaborative between the client, therapist, and client’s parents. The child’s perspective throughout goal setting and intervention is of central importance when using the CO-OP approach. Having the child participate in goal setting offers many potential benefits including personal relevance to the child, motivation to engage, generalization outside the therapy setting, and transfer of learning to other skills (Polatajko & Mandich, 2004). Research findings from Mandich, Polatajko, and Rodger (2003), also suggested that children gained confidence as they master their goals and were more willing to try new activities. In addition, this study also suggested that focusing on child-chosen goals and everyday activities promoted increased skill acquisition.

While using the CO-OP approach, three goals are established. Goals that were set for John were specific skills that he wanted to perform better and that he had difficulty with at the time of the case study. Informal interview with John’s parents during the goal setting phase also provided insight about skills they felt John could improve upon and were important for kindergarten. Using the evaluation methods and goal setting tools described in the evaluation section (i.e. daily activity log, Pediatric Interest Profile: Kid Play Profile, and the COSA) and through discussion with the client and parents, the three goal areas were decided upon. The client
wanted to work on goals that he enjoyed, were important, and would help him participate better in gym class and other school related activities. Goals were then thoroughly reviewed with the parents prior to initiation of intervention.

Goals were also based on evaluation results which indicated difficulty with gross motor coordination skills (especially those requiring strength and agility), fine motor coordination tasks (especially visual-motor integration and precision), and motor planning. Relevant activities of daily living that proved challenging to the client were also discussed.

For the purpose of this case study the three CO-OP goal areas are referred to as the long term goals and the objectives related to each goal are referred to as the short term goals. In addition, two additional long term goals, a school consultation goal, and a home programming goal were set in order to address other areas of need, supplement CO-OP approaches, and promote carryover of strategies upon the conclusion of the case study. The long term goals were all set to be met by the end of the five weeks of intervention, which included ten sessions.

For each goal, baseline data of initial performance is provided in accordance with the goal setting and evaluation process outlined by the CO-OP model which utilizes dynamic performance analysis (Polatajko & Mandich, 2004). Dynamic performance analysis (DPA) was conducted in order to establish a baseline, throughout intervention, and at intervention conclusion. DPA is an analysis of occupational performance based on observation. During the analysis, points and sources of problems and breakdowns are noted. Careful attention is also given to the fit between the client, task, and environment and how the identified issues may be addressed. In order to determine the problem points and breakdowns related to each goal skill area, the dynamic performance analysis decision tree was an aide that was utilized (Polatajko & Mandich, 2004). The decision tree considers performer prerequisites, performance prerequisites,
and competence of the performance including breakdowns. Going one step further, the dynamic performance analysis record was also utilized to organize intervention strategies.

For each long term goal below, its relevance to the models of practice is discussed as well as the points of breakdown which were determined through the DPA process. The points of breakdown identified were directly related to the short term goals decided upon as these elements were important components to successful performance of the long term goal. These skills were likely to be achieved in a shorter amount of time and using domain specific strategies which could vary from the strategies utilized to facilitate achievement of the long term goals.

**Goals**

Case study goals for John are listed below for easy reference. Further descriptions and explanation related to each goal follow.

**Long Term Goal #1.**

John will successfully shoot a basketball into an eight foot basketball hoop independently from ten feet away 2/10 attempts by week 5/5 of intervention.

*Short Term Goal 1 Related to Long Term Goal #1.*

John will square body to basket and bend knees before releasing ball with one cue in 4/5 attempts by week 3/5 of intervention.

*Short Term Goal 2 Related to Long Term Goal #1.*

John will push ball upwards in an arcing motion towards the backboard with functional hand placement on ball with one cue in 4/5 attempts by week 4/5 of intervention.

*Short Term Goal 3 Related to Long Term Goal #1.*
During each intervention session, with two cues from the therapist, John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session to help promote long term goal #1.

**Long Term Goal #2.**

John will prepare a three item lunch including making and packaging individual items and placing them into his personal lunch bag with one verbal and visual cue per item by week 5/5 of intervention.

**Short Term Goal 1 Related to Long Term Goal #2.**

John will gather and put away all necessary supplies for making sandwich and packaging snack with one visual cue by week 3/5.

**Short Term Goal 2 Related to Long Term Goal #2.**

John will make a peanut butter and jelly sandwich including organizing task, preparing sandwich with proper amount of jelly and peanut butter, and cleanly cutting off bread crust without crushing the sandwich with one verbal and one visual cue by week 5/5 of intervention.

**Short Term Goal 3 Related to Long Term Goal #2.**

During each intervention session, with two cues from the therapist, John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session to help promote long term goal #2.

**Long Term Goal # 3.**

John will don both of his tennis shoes (with orthotics), tighten the laces, and complete the first knot of shoe tying with two or less verbal or visual cues per shoe and minimal physical assistance by week 5/5 of intervention.

**Short Term Goal 1 Related to Long Term Goal #3.**
John will tighten the laces on his donned shoes using both hands in coordination with two or less verbal or visual cues by week 3/5 of intervention.

Short Term Goal 2 Related to Long Term Goal #3.

John will loosen the laces, pull out the tongue, use one hand to stabilize the back of the shoe, and don his shoes with two or less verbal or physical cues and minimal physical assistance by week 4/5 of intervention.

Short Term Goal 3 Related to Long Term Goal #3.

During each intervention session John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session with two cues from the therapist to help promote long term goal #3.

Long Term Goal #4.

John will independently complete an age-appropriate maze without pencil marks touching any guidelines in ¾ trials by week 5/5 of intervention.

Long Term Goal #5.

John will independently initiate and maintain an appropriate posture for seated table tasks for five minutes by week 5/5 of intervention.

School Consultation Goal.

Provide consultation to developmental kindergarten teacher to reinforce fine and gross motor skills and handwriting development, provide general resources and suggestions, implement classroom aides for routine management, and provide group led activities by week 5/5 of intervention.

Home Programming/Education Goal.
Provide John and his parents a core/upper body strengthening home exercise program, home fine and visual-motor activities program, relevant resources, and CO-OP strategy lists for goal skill areas by week 5/5 of intervention.

**Long Term Goal #1.**

John will successfully shoot a basketball into an eight foot basketball hoop independently from ten feet away 2/10 attempts by week 5/5 of intervention.

In addition to the mechanisms for goal setting described above related to the CO-OP model, long term goal #1 was created based on personal interest of the client. John expressed that shooting a basketball was a common skill he performed in gym class and desired to improve. This personal motivation highlights the element of volition outlined in the model of human occupation (Keilhofner & Burke, 1980). This goal also reflects another important component of the model of human occupation (Kielhofner & Burke, 1980) which supports goals that promote role fulfillment. The primary role of the client reflected in this goal is the student role as gym class is a unique environment in the school setting. Participating and achieving success in gym class related skills may enhance his role as a student and ultimately boost self-confidence. It is predicted that the client will derive purpose from this goal through his motivation for the task and desire to succeed. Meanings related to the goal may vary from session to session and could include perception of the environmental aspects of shooting a basket (physical and mental) and positive emotions felt by participating and achieving success.

The points of breakdown determined through the DPA process related to John successfully shooting a basketball included not knowing how to hold the ball, not knowing how to position his body when shooting the ball, and not knowing how to look at the target while
preparing his body for shooting. The short term goals were devised based on these points of breakdown.

**Short Term Goal 1 Related to Long Term Goal #1.**

John will square body to basket and bend knees before releasing ball with one cue in 4/5 attempts by week 3/5 of intervention.

**Short Term Goal 2 Related to Long Term Goal #1.**

John will push ball upwards in an arcing motion towards the backboard with functional hand placement on ball with one cue in 4/5 attempts by week 4/5 of intervention.

**Short Term Goal 3 Related to Long Term Goal #1.**

During each intervention session, with two cues from the therapist, John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session to help promote long term goal #1.

This goal is relevant as the CO-OP approach recommends discussing the GOAL-PLAN-DO-CHECK global strategy and domain specific strategies in each session and reviewing them with the client. The therapist then begins to guide the child in its use and encourages independence. Domain specific strategies are child and performance problem based. Verbalization of these strategies is a crucial component of intervention. Early on the therapist talks the child through the performance sequence with the goal being independent application of strategies through self-talk (Polatajko & Mandich, 2004). This independence is supported by the client verbalizing strategies each session that enhanced occupational performance and may be useful in the future; therefore, this short term goal is crucial. This short term goal is also related to and equally important to the achievement of long term goals two and three described below.

**Long Term Goal #2.**
John will prepare a three item lunch including making and packaging individual items and placing them into his personal lunch bag with one verbal and visual cue per item by week 5/5 of intervention.

In addition to the mechanisms for goal setting described above related to the CO-OP model, long term goal #2 was created based on the roles and routines of the client. Roles and routines are an important aspect of habituation according to the model of human occupation (Kielhofner & Burke, 1980). Creating and packing his own lunch may enable the client to fulfill his role as a son more completely as he can engage with his parents during the process. In addition, it will also support his role as a kindergarten student because when he attends full day kindergarten he will need to pack his lunch regularly. Personal meaning may be derived from this goal due to the interpretation of various physical aspects required for task completion (motor planning). Symbolic meaning may also be associated with this task as John will likely recognize the point of creating and packing his own lunch to take to school the following day. Purpose related to this goal may be external because the client understands the expectations related to attending school all day and the need to prepare a lunch for himself.

The points of breakdown determined through the DPA process related to John creating and packing his own lunch bag included not knowing all the ingredients and supplies required without frequent cueing, pressing too hard on his sandwich while cutting off the crust, using an excessive amount of peanut butter and jelly, not knowing how to position his body, the sandwich, and the knife while cutting, and not putting the supplies away without cueing. The short term goals were devised based on these points of breakdown.

*Short Term Goal 1 Related to Long Term Goal #2.*
John will gather and put away all necessary supplies for making sandwich and packaging snack with one visual cue by week 3/5.

_**Short Term Goal 2 Related to Long Term Goal #2.**_

John will make a peanut butter and jelly sandwich including organizing task, preparing sandwich with proper amount of jelly and peanut butter, and cleanly cutting off bread crust without crushing the sandwich with one verbal and one visual cue by week 5/5 of intervention.

_**Short Term Goal 3 Related to Long Term Goal #2.**_

During each intervention session, with two cues from the therapist, John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session to help promote long term goal #2.

_**Long Term Goal # 3.**_

John will don both of his tennis shoes (with orthotics), tighten the laces, and complete the first knot of shoe tying with two or less verbal or visual cues per shoe and minimal physical assistance by week 5/5 of intervention.

In addition to the mechanisms for goal setting described above related to the CO-OP model, long term goal #3 was created based on personal motivation and the important roles and routines of the client. Throughout the goal setting process the client and his parents discussed the challenges John faces related to putting on his shoes with his orthotics. These discussions reinforced the relevance of the goal skill. The model of human occupation recognizes the importance of motivation and roles and routines when determining therapy goals (Kielhofner & Burke, 1980). The client’s volition related to this goal was apparent by his expressed desire and motivation to put on his own shoes. As he improves his ability to put on his own shoes, John will be better able to fulfill his role of son by increasing his independence level with tasks that
typically required assistance from family members. In addition, routines will be better fulfilled as the time and assistance it takes to put his shoes on decreases. This issue is especially relevant because the client’s mother expressed that sometimes John takes an increased amount of time and cueing to complete his morning routine while getting ready for school. His role as a student is also supported through this goal because at school the children need to change their shoes to participate in gym class. If it is necessary for John to change into his shoes with the orthotics in preparation for gym class, he will be better able to do so in the future through working on this goal. The client may associate purpose with this goal intrinsically through motivation and the desire to complete skills at a level similar to his peers.

The points of breakdown determined through the DPA process related to John donning his shoes with his orthotics included not knowing how to loosen the laces in order to stretch his shoe before putting his foot with the orthotic on inside, not knowing how to position his body/hands in order to push his foot in the shoe, not knowing how to tighten the laces once the shoe is donned, and inconsistency at knowing what steps to complete the entire process in. The short term goals were devised based on these points of breakdown.

**Short Term Goal 1 Related to Long Term Goal #3.**

John will tighten the laces on his donned shoes using both hands in coordination with two or less verbal or visual cues by week 3/5 of intervention.

**Short Term Goal 2 Related to Long Term Goal #3.**

John will loosen the laces, pull out the tongue, use one hand to stabilize the back of the shoe, and don his shoes with two or less verbal or physical cues and minimal physical assistance by week 4/5 of intervention.

**Short Term Goal 3 Related to Long Term Goal #3.**
During each intervention session John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session with two cues from the therapist to help promote long term goal #3.

**Long Term Goal #4.**

John will independently complete an age-appropriate maze without pencil marks touching any guidelines in ¾ trials by week 5/5 of intervention.

Long term goal #4 was determined through standardized assessment results from the BOT-2 (Bruininks & Bruininks, 2005) which revealed below average scores in fine motor integration and precision. Mazes and other related tasks provide the opportunity to practice these skills in a fun context. Additionally, visual motor integration and fine motor precision skills will ultimately aide in John’s role fulfillment as a student, which is an important consideration when utilizing the principles of the model of human occupation (Kielhofner & Burke, 1980). In kindergarten, the amount of paper and pencil tasks increases significantly as compared to the client’s developmental kindergarten experience. As John’s skills improve in this area his confidence may also increase while simultaneously decreasing the time it takes him to complete fine motor tasks. In addition, the client’s mother expressed her wishes for John to improve at these skills, further enhancing the client-centered nature of this goal

**Long Term Goal #5.**

John will independently initiate and maintain an appropriate posture for seated table tasks for five minutes by week 5/5 of intervention.

Observation revealed difficulty with initiating and maintaining a biomechanically sound posture for seated fine motor tasks both inside the classroom and at home. Addressing this goal supports fulfillment of John’s role as a student. Not only will John be able to engage in table
tasks for longer periods of time with good body mechanics, he will also build core strength and likely improve focus for school related fine motor and handwriting tasks.

**Care Coordination**

The following goals involve care coordination of the client’s teacher and family members through applying strategies, utilizing resources, education, consultation, and accessing home programming. These individuals are all active participants in various environments of the client’s life. Each resource or suggestion made to the client’s family and classroom teacher was discussed in detail to ensure understanding. In addition, opportunity was provided for questions throughout the intervention process. Constant communication and collaboration regarding intervention also occurred with the client’s regular occupational therapist in order to promote carryover upon case study conclusion.

Another element of care coordination was addressed during observation of John’s speech therapy session. Speech goals were discussed with the therapist in an effort to increase carryover amongst services. As mentioned in the evaluation section, speech goals that were appropriate for reinforcement during occupational therapy services include maintaining eye contract during conversation and including discussions about the client’s daily activities.

**School Consultation Goal.**

Provide consultation to developmental kindergarten teacher to reinforce fine and gross motor skills and handwriting development, provide general resources and suggestions, implement classroom aides for routine management, and provide group led activities by week 5/5 of intervention.

The above school consultation goal addresses the skills related to classroom functioning that John’s teacher and mother saw as especially relevant to his kindergarten transition. In
addition, skilled observation in the classroom setting also revealed a need for services related to motor skills, handwriting development, and group led exercises. Providing these services ultimately enhances John’s role as a student and promotes success in various important school-related tasks and skill areas. The model of human occupation considers the various environments of childhood and how the therapist can facilitate successful interaction (Kielhofner & Burke, 1980). This school consultation goal is aimed at facilitating this positive interaction between John and his classroom environment. In addition, it will also allow him to participate in classroom routines more efficiently.

**Home Programming/Education Goal.**

Provide John and his parents a core/upper body strengthening home exercise program, home fine and visual-motor activities program, relevant resources, and CO-OP strategy lists for goal skill areas by week 5/5 of intervention.

The provision of home programming during the case study will help ensure carryover of strategies and interventions to various environments. When conducting a case study which spans a limited amount of time, an essential component is providing resources that can be accessed and utilized upon study completion. A core/upper body strengthening program will help address the client’s low muscle tone which impacts performance. A home program for fine and visual-motor activities provides fun opportunities for the client to practice school-related skills at home with family or friends. Additionally, an important aspect of the CO-OP approach is family involvement. Providing strategy lists for the goal areas will help encourage this involvement, as well as provide support in the acquisition of new skills and facilitate generalization and transfer. Summary strategy sheets will be an easy way for the parents to continue using CO-OP principles and strategies for new skills upon study completion. Much like the school consultation goal, the
home programming goal supports the principles of the model of human occupation related to roles and routines (Kielhofner & Burke, 1980). Providing home programming that will outlast the case study intervention promotes development and successful, efficient role fulfillment of student and son.

**Intervention**

During the five weeks following the evaluation process, John received five occupational therapy treatment sessions at the Toledo Children’s Hospital Total Rehab clinic as originally scheduled. He also received five additional occupational therapy sessions in his home and was visited a total of four times in his developmental kindergarten classroom in order to observe his performance and provide consultation to his classroom teacher.

Treatment sessions both in the clinic and in the home focused on the three goal skill areas outlined by the CO-OP approach as well as the additional long term and home programming/education goals. The CO-OP recommendations for children younger than seven years of age were taken into consideration when organizing and carrying out treatment sessions. These recommendations included reducing the time spent on each task to approximately 15 minutes, using various modalities with frequent activity changes, applying strategies that require repetition and reinforcement, incorporating play, and parental involvement (Polatajko & Mandich, 2004). In accordance with the CO-OP protocol, the GOAL-PLAN-DO-CHECK global strategy was reviewed at initiation of intervention and during each session that followed. The child was provided a simple vision aide which introduced the idea and the meaning of each part. As intervention progressed, the client was able to identify what each part meant to him in relation to each specific goal area. As an introduction, the strategy was also modeled for the child while steps were also verbally described. In addition, in an effort to incorporate speech therapy
related concepts, each session began with a brief conversation which included probing questions about the client’s day. Interaction style throughout intervention was playful and easy going as literature regarding CO-OP suggests that a playful style promotes success in engaging children in strategy use to solve motor performance problems (Polatajko & Mandich, 2004). In correspondence with this approach, during this specific intervention approach, movements were exaggerated and, at times, mistakes were purposefully made in order to provide clear cut examples and promote ease of strategy use.

**Clinic Intervention**

Treatment sessions in the clinic were one hour in length, one time per week during the five week intervention period. These sessions occurred during John’s regularly scheduled treatment time. Basketball and donning shoes were practiced nearly every session, with basketball practiced every session and donning shoes all but two sessions. Donning shoes was not practiced during session number seven or nine because the client did not need to remove his shoes for any other activity during the session; therefore the goal was not addressed that session in an effort to keep practice naturalistic. Each skill was practiced for 15-20 minutes per session. The following sections discuss how each goal area skill was addressed in the clinic setting.

**Shooting a basketball.**

In the clinic, the primary occupational forms utilized to structure the interventions for shooting a basketball included an overhead beam in the gym, various weights and sizes of balls, and open space outdoors when the weather was appropriate. Basketball was practiced in the large therapy gym or outdoors directly outside the clinic. Practice schedules varied from part or whole practice. Part practice is appropriate for this skill as the task can be broken down into
components. Whole task practice was also utilized due to the discrete and relatively quick performance nature of shooting (Polatajko & Mandich, 2004).

In the clinic various intervention techniques were utilized while keeping the CO-OP principles in mind. Proper performance of the task was frequently modeled for the child, especially during the initial stages of learning. During initial part practice, the client practiced bending his knees and jumping up without the ball in order to feel the movement required in his lower extremities. This type of practice was repeated during the first two weeks of intervention. In order to practice the upper extremity and trunk component parts of shooting a basketball, a variety of different strategies were used. Varying sizes and weights of balls were utilized in order to practice the shoulder flexion, elbow extension, and wrist flexion pattern required to shoot a ball and for strengthening. The client practiced this movement pattern in various positions including tall kneeling, laying supine, and standing. During this practice format a basketball hoop was not used, but rather, the occupational therapy student was the target instead. As a basketball hoop was not available, the emphasis during the intervention was on proper body mechanics during shooting and hand placement on the ball. Another practice method utilized involved shooting various balls over a high beam in the clinic. In this way, the upward movement and strength required for shooting was incorporated as well as bending the knees in preparation for shooting. Amount of trials completed during each practice session varied depending on client success, endurance, and participation level. Trials were typically grouped in sets of ten. Before each set of trials a plan was discussed for how to accomplish the task. After a set of trials was completed a discussion occurred with the child to help him engage in guided discovery regarding how the plan worked and what could be modified next time. Strategy use throughout the intervention period was repetitive and reinforced regularly.
**Donning shoes with orthotics.**

With regard to donning his shoes, the occupational form was simple, including only the client’s shoes, orthotics, and an appropriately sized seat or chair. Treatment was conducted in the therapy gym or in a small room depending on the client’s attention level and distractibility. This task was always broken down into parts due to its sequential, step-wise nature.

Interventions related to donning his shoes with the orthotics occurred in a similar fashion each session for repetition and consistency. As an introduction to the task during the first two sessions, loosening and tightening the shoe laces was modeled as well as completing the first step of shoe tying while verbalizing each step. During intervention each component part was practiced accordingly using various strategies described further in upcoming sections. The important component parts for the task included the initial loosening of the laces, stretching out the shoe, placing and positioning the foot with the orthotic in order to push the foot completely into the shoe, tightening the laces, and completing the first step of shoe tying. In order to promote naturalistic occupation and practice in a realistic context this skill was only practiced when needed, including preparation for going outside. It was established that John would loosen both shoes first before removing the orthotics or attempting to put his foot into either shoe as he had a tendency to rush the task and immediately attempt to put his foot in before completely loosening and stretching it. Similarly, once shoe was donned, it would be fully tightened before attempting the other shoe. This compartmentalized the task and allowed John to focus on one shoe at a time. Chaining also became useful as one step then became a prompt for the next. Potential strategies to accomplish each part of the task were attempted. Upon completion, the effectiveness of the strategies was discussed and reinforced in following sessions.

**Additional clinic intervention.**
Clinical intervention sessions also included fine and visual-motor activities that addressed the other long-term goals. Strategies to promote appropriate seated posture were utilized. A posture prompt visual cue was provided to help John remember and maintain appropriate posture. The same prompt was also utilized during home and school-based interventions in order to promote carry over and consistency across environments. Please see Appendix B for this visual aide. Fine motor and visual-motor activities completed while utilizing the posture prompt in the clinic included mazes, paper folding activities, handwriting worksheets requiring copying and tracing, coloring, connect the dots, and fine-motor games.

**Home Intervention**

Treatment sessions in the home varied from one to two and a half hours in length depending on scheduling and availability of the case study client and his family. Home therapy was conducted one time per week during the five week intervention period. During the home intervention sessions, each goal skill was addressed during every session. Each skill was typically practiced for 15-25 minutes each. Occupational forms in the home setting included the client’s kitchen (including utensils and appropriate supplies for making and packing lunch), various writing instruments, task dependent fine motor manipulatives, a bench to sit on while donning shoes, the client’s driveway (including a basketball hoop), and various sizes and weights of balls.

Each home intervention session was structured similarly. The sessions typically began at noon making it an ideal time to create and pack lunch first. After eating lunch, the client spent approximately 30 minutes completing various fine motor, visual-motor integration, and handwriting activities at the kitchen table. The client then worked on donning his shoes in
preparation to practice basketball outside. The following sections outline how each skill was
uniquely addressed in the home setting.

**Shooting a basketball.**

Intervention and occupational forms related to basketball were similar to that which
occurred in the clinic; however treatment was enhanced and expanded in the home setting due to
decreased time restrictions, increased practice space, and increased equipment availability.
Treatment was always conducted in the client’s driveway with a basketball hoop set at an age-
appropriate height of eight feet. Much like the clinic, during initial part practice, the client
practiced bending his knees and jumping up without the ball in order to feel the movement
required of his lower extremities. In order to practice the upper extremity and trunk components
of shooting a basketball, a variety of strategies similar to those in the clinic were used. Varying
sizes and weights of balls were utilized in order to practice the shoulder flexion, elbow
extension, and wrist flexion pattern required to shoot a ball. This was practiced at a distance
approximately ten feet apart in which the client would shoot the ball toward the occupational
therapy student.

Home intervention offered the added benefit of utilizing a basketball hoop as the target.
The task was simplified during the first half of intervention. The client practiced shooting at a
closer distance (e.g. seven feet) from the basket using a regular weight basketball and/or
practiced at the established long-term goal distance of ten feet using a lighter playground type
rubber ball. Multiple trials were completed at each distance, usually in increments of ten. Before
each set of trials a plan was discussed for how to shoot the ball. Care was taken not to talk during
the trials. This gave the client the opportunity for focus and self-evaluation. Upon completion of
a set of trials, a discussion occurred to facilitate guided discovery for how the plan worked and
what could be modified. Finally, whole part practice was also included in which the client completed trials using a regular basketball at the goal distance from the basket. Similar discussion ensued regarding a plan before shooting and a discussion after about how the plan worked. Throughout treatment the client responded well to physical and verbal cues, which faded as treatment progressed. Various types of passes including bounce, chest, and overhead were also practiced as an adjunct to CO-OP treatment and a means for strength building, bilateral coordination, and visual-motor integration required for successfully shooting a basketball. Rest and play breaks were provided as needed to limit frustration and ensure motivation and fun.

**Preparing a three item lunch.**

Various methods and occupational forms were utilized during intervention while learning how to prepare and pack a three item lunch. During each home session the client would practice creating and packing his lunch as the first part of each session. Given the nature of the task, practice required breaking down each task into component parts, while also bringing them together for a sense of completion. This occupation always occurred in the kitchen. Constant elements of the form included the required items including peanut butter, jelly, bread, containers, knife, spoon, plate, drink, snack of food, and a lunch bag. At the beginning of the intervention period the client required frequent cueing to gather all the necessary supplies in an organized fashion. It was suggested that he get all the items out of the refrigerator first, then the closet next to it, then the cupboard, then the silverware drawer in order to save time and increase efficiency. While making the peanut butter and jelly sandwich it was determined that he would only use three scoops of jelly and three scoops of peanut butter to address concerns with putting too much on his sandwich and making a mess. Cutting the crust off the sandwich and in half were also
difficult as described previously. Details related to effective strategy use for this task are described in further detail below.

The client also practiced preparing snacks for his lunch. He typically chose chips or crackers and put them into a sealable container. Initially cues were provided to line up the lid and container and for amount of product to put in the container but gradually those cues faded and he was able to put in the right amount of food and close the container independently. As a means for task modification, the client also practiced putting snack items into zip lock bags. Simulation was required to facilitate practice of packing items in his lunch bag. This was needed because during the intervention period the client was not yet required to pack his lunch for school as he only attended a half day. Discussion and demonstration revolved around motor planning how the items could fit in the bag as well as where the heavier and lighter items should go. The plans were then carried out to evaluate effectiveness. When the bag did not zip close, collaboration occurred between the child and occupational therapy student regarding how to reorganize the bag. Cues faded as treatment progressed.

As a result of the large amount of cues needed for gathering items and putting them away, it was decided that a visual aide may be useful in order to increase independence and decrease time required for task completion. A visual aide was created and implemented in the third home intervention session. The visual aide can be viewed in Appendix C. During the session the client and parent were introduced to the aide and its potential use. The tool was utilized through modeling by the occupational therapy student during its orientation. It was primarily used to facilitate gathering of items, putting them away, and throwing away trash. The client was interested in the aide, but it was apparent that he did not fully understand how to use the tool. During the fourth home session, use of the aide was slightly modified to address this
concern. Instead of moving the items just from the “To-Do” to “Done” side the client was directed to place the cards on the kitchen counter as he gathered the items and only place them on the “Done” side once each item was put away. This technique increased the effectiveness of the visual aide and it was utilized with limited cueing throughout the remainder of the intervention period. This is further discussed in the upcoming occupational synthesis section.

**Donning shoes with orthotics.**

Intervention related to donning shoes with orthotics was completed in a similar fashion as in the clinic in order to promote generalization and strategy use. In the home setting, the client typically donned his shoes while sitting on a bench in the laundry room. This set-up limited distractions and was naturalistic. Given the decreased time constraints in the home setting an added benefit was the ability for repetitive practice and strategy use related to tightening and loosening the shoe laces. Through the process of guided discovery, the client learned new strategies and was able to apply them more consistently and with less cueing as therapy progressed. Practice style for this task in the home setting was always broken down into parts due to its sequential step-wise nature. Chaining was used in a similar fashion as in the clinic. The client responded better to techniques and strategies in the home setting as compared to the clinic while practicing this task. It is assumed this was because the environment was less distracting and more naturalistic.

**CO-OP Specific Principles and Strategies**

Key features of the CO-OP approach were applied during intervention which are worth mentioning. During all three goal skill areas, the dynamic performance analysis process was completed on a regular basis in order to guide intervention strategies. Through constantly analyzing the occupational and environmental demands related to each skill and session,
Interventions were modified accordingly. Other key features of the approach including cognitive strategy use and guided discovery provided the foundation for intervention. For each goal skill various, unique strategies and techniques were useful. Applications of these CO-OP specific principles related to each skill follow.

**Shooting a basketball.**

CO-OP principles that promoted guided discovery while learning to shoot a basketball were used in various ways during intervention at home and in the clinic. Practicing separate parts of the task reinforced *One thing at a time!* The *Ask, don’t tell!* philosophy was facilitated through asking various types of probing questions after trials were completed including questions such as: “Why did the ball go that way?” “What did you remember from the plan?” Choices were often provided to clarify and decrease difficulty if the client had trouble answering such as, “Did your arms go up?” or “Did you aim straight before shooting?” *Coach, don’t adjust!* was utilized through domain specific strategies related to body positioning and demonstrating proper performance. Required adjustments were then discussed in a collaborative manner. *Make it Obvious* was used in conjunction with the other mentioned discovery techniques to promote identification of plans. Upon success, comments and feedback were specific such as, “You pushed your arms up and out and it worked!” If errors were made, those were also made obvious as well through comments like, “Did you use your strong hands on the ball?”

Identification of effective domain specific strategies was facilitated through modeling and verbal guidance. During each practice session attention was given to relevant parts of the task and potential strategies were emphasized. Upon each completion of the task, new strategies were brainstormed and tested during the next trial. Useful strategies were maintained, reinforced, and
repeated throughout the remainder of intervention. As intervention progressed, less assistance 
was needed for strategy recollection and utilization during performance.

Various domain specific strategies were discovered that proved useful for John while 
helping him learn how to shoot a basketball. The exact strategy utilized follows, as well as the 
domain specific category in parenthesis. Strategies included: look where I am aiming (attention 
to doing), left hand back, right hand side (body position/verbal rote script), use “strong hands” on 
the ball (feeling the movement), push ball hard and strong (verbal motor mnemonic), bend knees 
before shooting (body position), push arms straight up and out (feeling the movement), make ball 
and arms look like a rainbow when going through the air (verbal motor mnemonic), and get body 
straight to target before shooting (body position). These strategies are also outlined in Appendix 
F in the strategy summary sheet.

One can see that verbal strategies were especially useful for the client as well as those 
related to feeling his movements and body positioning. Due to the discrete nature of the task, the 
client was encouraged to verbally express these strategies before each trial in order to focus 
attention on planning and execution of movement before initiation. He was questioned after 
completion regarding strategy effectiveness and utilization to promote self-evaluation and 
reinforcement. Another enabling principle of the CO-OP approach is to promote learning. 
Various techniques were used including hand-over-hand, description, direct teaching, comparing 
and contrasting performances, and prompting. Shaping was also used as the task was simplified 
during the early stages of learning. The task was modified by varying the weights and size of the 
ball used for practice. As intervention progressed fewer cues were needed for strategy 
recollection, utilization, and client self-evaluation.

**Preparing a three item lunch.**
CO-OP principles that promoted guided discovery while learning to prepare a lunch were used in various ways during home based intervention. Practicing separate parts of the task reinforced practicing *One thing at a time!* For example, this included designated, additional time to practice sandwich preparation and cutting. The *Ask, don’t tell!* philosophy was facilitated through asking various types of probing questions after whole or part task trials were completed including questions such as, “How did you move your hand when cutting?” “Did you get everything out you needed?” Choices were often provided to clarify and decrease difficulty if the client had trouble answering such as, “Did you have your arm up or straight while cutting?” *Coach, don’t adjust!* was utilized through domain specific strategies related to body positioning and demonstrating proper task performance. Adjustments that needed to be made were then discussed through collaboration. *Make it Obvious* was used in conjunction with the other mentioned discovery techniques to promote identification of plans primarily through modeling. Upon success, comments and feedback were specific such as, “You put the lighter items on the top and the bag zipped!” or “You put only three scoops of jelly and it did not make a mess!” If errors were made, those were also made obvious as well through comments like, “Did you have the handle of the knife in your hand?”

Identification of effective domain specific strategies was facilitated through modeling and verbal guidance. During each practice session attention was given to relevant parts of the task and potential strategies were emphasized. Upon each completion of the task, new strategies were brainstormed and tested during the next trial. Useful strategies were maintained, reinforced, and repeated throughout the remainder of intervention. As intervention progressed, less assistance was needed to recall strategies and utilize them during performance. Various domain specific strategies were discovered that proved useful for John in order to help him learn how to prepare
and pack a lunch. In order to get a picture of what types of strategies worked for John, the exact strategy utilized follows, as well as the domain specific category which can be seen in parenthesis. Strategies included hold knife like a fist (body position), arm/hand facing sandwich while cutting (body position), no chicken wing (body position), arm is straight like a railroad track (body position/verbal motor mnemonic), light as a feather while cutting (verbal motor mnemonic), hold knife handle in hand (body position), utilizing visual aide (task specification/modification). These strategies are also outlined in Appendix F in the summary strategy sheet. One can see that verbal strategies were especially useful as well as those related to feeling his movements and body positioning. The client was encouraged to verbally express his plan before each trial of the task in order to focus attention on planning and execution of movement before initiation. He was questioned after completion regarding effectiveness to promote self-evaluation and self-reinforcement as part of the learning process.

Another enabling principle of the CO-OP approach is the promotion of learning. Various teaching techniques are worth mentioning. Task modification was facilitated through changing the type of bread, type of knife, and packing used to practice the task. In addition, the visual cue served as a means for task specification/modification. Specific techniques were utilized while cutting the sandwich. These included hand over hand assistance, modeling, verbal and visual prompting, shaping, positive reinforcement. Hand over hand assistance was provided to help the client feel what his body and hand position should feel like while cutting as well as the type of pressure he should apply on the knife and bread. Modeling was also used as a means to demonstrate proper positioning to provide a visual cue to the client. Shaping was utilized in various ways. In order to simply the task, during home interventions two through four the client practiced cutting in a variety of ways. He practiced with plain white bread (as compared to the
usual stiffer wheat bread), he used a plastic knife with the bread, and practiced cutting with a plastic knife and play dough. These all provided different forms of proprioceptive input and allowed the client to focus solely on the task of cutting. He responded well to these mechanisms and always had good motivation for the task. Positive reinforcement was extremely beneficial as a means for self-esteem building.

**Donning shoes with orthotics.**

CO-OP principles that supported guided discovery while teaching John how to don his shoes with his orthotics were used in a various ways throughout intervention. Practicing each component part of the task reinforced practicing *One thing at a time!* The *Ask, don’t tell!* philosophy was facilitated by asking probing questions after trials were completed including: “What do you need to do first?” Choices were provided to clarify if the client had trouble answering questions such as, “Which laces do you pull now? *Coach, don’t adjust!* was utilized through domain specific strategies related to body positioning and demonstration. Adjustments that needed to be made were then discussed through collaboration. *Make it Obvious* was used in conjunction with the other mentioned discovery techniques to promote plan identification. Comments and feedback were specific. Errors were also made obvious through comments like, “Did you push your foot all the way in your shoe before attempting to stand?”

Identification of useful domain specific strategies was facilitated through modeling, trial and error, and verbal guidance and discussion. During initial task introduction steps were verbalized and during each practice session that followed each task part was emphasized as needed. Upon completion of the each step of the task, strategies were brainstormed through collaboration. As intervention progressed, less assistance was needed to recall strategies and utilize them during performance. Various domain specific strategies were discovered that proved
useful for John in order to help him learn how to put on his shoes with his orthotics. In order to get a clear picture of the strategies used, the exact strategy follows, as well as the domain specific category, seen in parenthesis. These strategies included: loosen both shoes laces first (supplementing task knowledge/task specification), fingers facing each other when pulling or tightening laces (body position), make shoe “monster size” (verbal motor mnemonic), bumpy laces are loose/flat laces are tight (verbal motor mnemonic), push foot down and into shoe before attempting to stand up (body position), tighten laces last (supplementing task knowledge), and do first “x” of shoe tying, then through “x” (attention to task/ verbal rote script). These strategies are also outlined in Appendix F in the summary strategy sheet. One can see that verbal strategies were especially useful for the client during this task. The client was encouraged to verbally express these strategies before each part of the task. He was questioned after completion regarding strategy effectiveness to promote self-evaluation.

Another cornerstone of the CO-OP approach is the promotion of learning. Commonly used teaching techniques that promoted this enabling principle included direct teaching and prompting. Chaining was useful for this task in order to promote learning of the sequence of steps, difficulty with certain steps, and putting all the steps together in this multi-step skill. As intervention progressed fewer cues were needed for strategy utilization and self-evaluation.

**Additional home intervention.**

Home-based intervention also included a wide variety of fine and visual-motor activities. During activities that were to be completed at the table, the posture prompt visual cue was utilized as a reminder to the client. This prompt was originally introduced during the fourth session (second home session) and was utilized throughout remaining interventions in the home and clinic; although emphasis on its use faded as the client gained the ability to maintain
appropriate posture. Intervention activities varied in the home setting and were tailored to meet the individual interests expressed by the client and his parents in order to promote client-centered therapy. For example, the client loves trains; therefore, an effort was made to incorporate activities involving trains. As part of intervention, fine and visual-motor activities completed included mazes, connect the dots, handwriting worksheets with tracing and copying, hidden picture activities, visual motor scanning exercises, coloring, and find the difference in the pictures activities.

During these activities various therapeutic techniques were utilized to further enhance skill development. Strategies included finger tracing tasks fist, then pencil tracing, followed by marker tracing. When completing visual scanning, find the difference, or hidden pictures exercises the client was instructed to circle or color in choices to promote precise pencil control. To increase shoulder stability these activities were also completed in various positions, such as at a vertical surfaces. Cues were provided as needed, primarily verbal cues for directions as well as verbal and visual cues for letter production and sizing.

Other therapeutic activities included making a milk jug toss and catch game to promote hand-eye coordination; a travel tic-tac-toe game and tissue paper art for enhancing fine motor skills and motor planning. Pictures of these activities can be seen in Appendix D. Basic age-appropriate, simple computer games requiring movement and clicking of the mouse were also introduced in order to expose the client to computer usage in preparation for kindergarten.

As an additional element to intervention, a visual schedule was created in order to assist the client with his morning routine. His mother expressed that he required frequent cueing to complete daily tasks before school and to remember what he needed to take to school. A picture of the visual schedule provided to the client and his family during intervention session number
six is included in Appendix E. The schedule and its potential uses were discussed with the client’s mother. The schedules were placed in the client’s bedroom and the laundry room; location was dependent on the items represented in the schedule. Follow-up through discussion with the parents was completed after the tool’s initiation.

**Home Programming/Education**

Two main objectives of the CO-OP approach are generalization of learning beyond the therapy setting and transfer of learning to similar skills. Since CO-OP intervention primarily focused on three goal areas, it is important for the client to adapt skills and strategies to the demands of new skills encountered in childhood (Polatajko & Mandich, 2004). In order to accomplish this objective, parental education and involvement is essential. In an effort to promote this concept, various materials were created and provided to John’s parents throughout the intervention process and at case study conclusion. At the beginning of intervention, an educational tool was created which described the CO-OP approach, its objectives, and the key features. This handout can be viewed in Appendix F. This was provided to John’s parents in order to orient them to the approach and increase carryover of strategies at home. A CO-OP strategy summary sheet was also provided at the conclusion of intervention which detailed various strategies that were utilized and proved effective during intervention for each goal skill. This summary sheet can be found in Appendix G.

In addition, to address John’s decreased muscle strength in his upper and lower extremities, a detailed home exercise program was created. Various core, upper body, and hand strengthening exercises for home and in the community were outlined with pictures, detailed descriptions, and a recommended protocol to follow. This home program was reviewed with the client and his parents during intervention session number eight. Each exercise was discussed and
demonstrated for the client. The client’s mother took pictures of the exercises for future reference. Appendix H includes the home exercise program.

Additionally, a fine and visual-motor manual including a wide variety of activities was created and distributed to the client and his parents during session eight in order to reinforce and promote growth of fine and visual-motor integration skills at home, especially during the summer months in preparation for kindergarten in the fall. The parent was given opportunity to review the activities and ask questions if needed. This guide can be found in Appendix I. A simple list of potentially useful websites with easily accessible and appropriate activities for the client and parent to explore was also provided.

**School-Based Intervention and Consultation**

The initial school visit was described previously in the evaluation section of the case study. The evaluation and observation results directly led to the consultation and interventions provided in John’s classroom. A total of three additional classroom visits were completed in order to provide consultation and intervention. Each visit was approximately three hours in length as that is the length of his morning developmental kindergarten program. Remaining in the classroom for the entire length of the school day was important in order to prevent unnecessary disruption in the classroom environment.

After completing the evaluation process, it was deemed appropriate to consult with the teacher regarding various sensory motor ideas appropriate for the classroom environment and developmental level of the students. A handout including general principles and suggestions for sensory motor development, movement ideas, and general resources was reviewed with and provided to the teacher. Please see Appendix J for the handout that was provided. The teacher was receptive to the activities and expressed her willingness to include them in her classroom
During this visit, simple suggestions were also provided to reinforce fine motor and handwriting skills such as using inclined and vertical surfaces and kinesthetic methods for handwriting instruction (e.g. writing over burlap). Again, the teacher was open-minded. At the conclusion of this visit, a group classroom intervention was scheduled and discussed for the next visit.

In between classroom visits, a St. Patrick’s Day themed classroom intervention was planned in order to introduce the sensory motor activities to the students and for reinforcement of fine and gross motor skills. A 45-minute group intervention was conducted which began with a St. Patrick’s Day book being read to the students. Upon finishing the book, approximately eight sensory motor activities were demonstrated and practiced with the students. The exercises reviewed were deemed appropriate based on the student’s developmental level, behavior, and classroom environmental constraints. The children responded well to the exercises and appeared to enjoy the experience. A fine motor St. Patrick’s Day craft was completed which required cutting, pasting, and following multi-step directions. Please refer to Appendix K for a picture of the leprechaun mask that the students created. Finally, a simple hand-eye coordination game was organized which required the students to toss small objects into a target. The classroom teacher and aide were available to help as needed. The students were active participants throughout the entire session. John participated well during the intervention and performed at a similar level to his peers.

During the same session, the posture prompt visual cue was also provided for John’s desk. The posture prompt was the same prompt utilized during the home and clinic occupational therapy interventions in order to promote carry over and consistency across environments. The creation of a picture schedule for John’s morning routine was also discussed with the teacher as
this is the time of day that John requires increased cueing for task management and completion. The teacher offered suggestions regarding what pictures and titles to include on the schedule.

During the third and final classroom intervention session, the desk top picture schedule was introduced to and reviewed with John and his teacher; it was also set up on his desk. Both were responsive and excited about the idea. To view a picture of the desktop picture schedule for John’s morning routine, please refer to Appendix L. At the conclusion of the session, opportunity was provided for the classroom teacher to ask any additional questions as this was the conclusion of classroom intervention and consultation; however, contact information for the occupational therapy student was provided in the event that she had any follow-up questions regarding the interventions provided during the study.

**Occupational Synthesis**

An occupational synthesis and resynthesis is used to describe one specific therapeutic occupation that was particularly interesting and effective. The occupation chosen for this analysis is that of preparing and packing a three item lunch. The primary occupations of relevance here occurred during the sixth and eighth sessions of the intervention period.

The location of this occupation was the client’s home kitchen. The kitchen housed common appliances such as a refrigerator and dishwasher. Other necessary equipment was present such as adequate counter space, drawers, cabinets, and a sink. Various other relevant aspects of the planned occupational form included the supplies and utensils needed for making and packing lunch (e.g. peanut butter, jelly, bread, containers, knife, spoon, plate, drink, snack of food, and a lunch bag). It was predicted that John would find various meanings and purposes in the planned occupation while assumptions were made that he would understood how preparing
and packing his own lunch contributed to his independence. It was predicted that he would recognize that he would be required to pack his lunch for all day kindergarten in the fall.

It was assumed that John would perform well during this specific lunch preparation occupation because it had been practiced before and had personal relevance. During session six, a visual aide was introduced to assist in preparing and packing a lunch. The visual aide was implemented in order to promote increased independence, as a prompt to get out each item before beginning the task, and as a prompt for the client to put away each item after the task was completed. Each picture cue was originally designed to serve as a simple cue to get the item out, but to stay on the “To-Do” board until it was put away. The client seemed interested in the aide, but was slightly confused about how to use it. Correct use of the visual aide was demonstrated throughout the intervention with little independent initiation from the client.

It was planned to reintroduce the visual aide in a new way during the following home session in order to facilitate ease of use and decrease confusion. It was decided that as the client got out each required item for the occupation he would take off the picture from the “To-Do” side of the visual aide and place it on the counter. The pictures would then only be returned to the “Done” side when each item was put away and necessary items were placed in the trash. The client was encouraged to gather required items before starting the task. It was assumed that the client would need verbal cues for this as well as for gathering items in an organized fashion. During the sandwich preparation and cutting phase of the occupation it was assumed that the client would require two to three verbal cues to practice CO-OP strategy use while performing the task. Adaptation was assumed to be reflected through learning from previous trials of the task resulting in increased performance level during the current occupation. There were certain elements that cues were not expected for, such as using three scoops of peanut butter and jelly. In
addition, it was the hope that this occupation would promote further learning and increase confidence for future trials of the task. As a means for compensation, it was assumed that the client would utilize the visual aide provided to him to aide in his performance. The plan also included additional practice for cutting white bread using a plastic knife and cutting play dough.

The actual occupational performance observed included the following. The client required three verbal cues to use the visual aide as instructed. The occupational therapy student assisted by collecting the picture pieces in her hand as John pulled them off the board. She placed them on the counter to remain there until the items were returned. As expected, the client remembered to only use three scoops of peanut butter and jelly. He demonstrated increased ability to spread the substances on the bread. As anticipated, he also recalled various CO-OP strategies while cutting the crust off his bread including, “Light as a feather,” “No chicken wing,” and to put the knife handle in his hand. During this session, he also came up with a new strategy for his arm positioning while cutting; “Arm straight as a railroad track.” For the first time, the client independently decided to cut the sandwich in half. John prepared a container of chips independently, although he filled the container too high and did not realize it until some of the chips crunched while putting the lid on. He required a cue to initiate packing his lunch bag upon completion of preparation and packaging items. The client recalled that lighter items should go on top but he still required a visual cue to motor plan how to fit everything into the bag. The client required a cue to put the supplies away before proceeding to eat his sandwich. The occupational therapy student again assisted with the collection of the picture cards, but the client was able to put away each item after utilizing the pictures as a cue. He remembered to put the cards on the “Done” side of the board. After eating his sandwich the client practiced cutting white bread using a plastic knife while utilizing his CO-OP strategies. He required one cue per
piece of bread to utilize the strategies. Throughout the intervention, positive feedback was provided accordingly related to specific improvements. During the occupation, the only change that was made involved the practice structure of the cutting task. It was decided that because the client was successful at cutting his sandwich and felt satisfied that practice using the play dough would be omitted for that session.

The inferred meanings and purposes from the observed occupational performances were as expected for a child John’s age. The client was able to accurately interpret the physical aspects of the occupational form including his sense of position in space and his body’s relation to the supplies for making a lunch; including how he oriented his body to retrieve and carry the objects and positioning required for cutting a sandwich. Symbolic meaning was attributed to the occupation as the client was able to see the relevant aspects of the form, recognize, and think about what the supplies were used for. Affective meaning is contrived through the emotional experience of the task. This was apparent during this occupation as the client was excited to prepare lunch. This was especially obvious upon success related to sandwich preparation.

It can be assumed that various purposes were also attributed to the occupation. The client was highly motivated for the task. Preparing lunch gave him a sense of independence and satisfaction, thus his intrinsic purpose to master the occupational form appeared to be high. Extrinsic purpose was assumed because the client desired to learn how to prepare his lunch more efficiently and was excited to pack his lunch for kindergarten in the fall. Discussion with the student revealed that he realized these tasks were connected and important; thus he was also motivated to fulfill his role as student and son. It was also reasonable to infer that improved utilization of the picture visual cue contributed to a higher level of meaning and purpose for the client.
Assessment information gained through this lunch occupation revealed improvements in various areas. The client required less verbal cueing to gather and put away all items than in previous sessions. He utilized the visual aide in a more efficient manner than he did previously, perhaps as a result of the new way the aide was structured and introduced. Continued use of the aide is warranted and valuable. Improvements were also noted in his ability to apply CO-OP strategies to the task of cutting his sandwich as evidenced by the neater cut lines, fewer verbal cues required, and decreased mess. Additionally, the client’s confidence with the task appeared to increase as he independently decided to cut his sandwich in half. Overall, John is successful at preparing and packaging his lunch with verbal cues, strategy use, and the utilizing the visual aide. It was apparent that motor planning were still challenging for the client as seen by difficulty in problem solving how to fit the items in his lunch bag.

As mentioned the visual aide served as the primary means for compensation for accomplishing the occupation. In addition, verbalizing CO-OP strategies may also be considered compensation techniques. Obvious adaptation occurred as the improvements described above reflect learning. The client felt an increased level of independence and likely an increase in self-confidence.

In order to resynthesize this occupation, the visual schedule would be utilized in a similar fashion, but likely with less verbal cueing. The client could also engage in the originally planned simulated cutting occupation with the play dough for additional practice. In order to address difficulties with motor planning related to consistently packing his lunch bag, a drawing could be completed to show how items fit in the bag in order to provide. Further education regarding the use of the visual aide and strategies related to lunch preparation and packaging would also be
provided to the client’s parents in order to promote carryover and generalization of skills as well as continued independence of the task upon case study completion.

**Outcomes**

Upon the completion of intervention, relevant subtests of the *Bruininks-Osteretsky Test of Motor Proficiency, 2nd edition* (BOT-2, Bruininks & Bruininks, 2005) were completed as a means for standardized post-intervention evaluation. Subtests that were selected to be conducted again were specifically related to the case study goal areas and were in the low range at the study’s start. Subtests that were re-administered included fine motor precision, fine motor integration, manual dexterity, and upper-limb coordination. Scores revealed at final testing can be found in Table 2. Notable improvements were made in the areas of fine motor precision and fine motor integration.

In accordance with the CO-OP approach, for each long-term goal skill area, the modified version of the *Child Occupational Self-Assessment* (COSA, Keller, Kafkes, Basu, Federico, & Kielhofner, 2006) was re-administered to capture the child’s perceptions of his own occupational performance and importance of goal skills following the intervention. As one may recall from the evaluation section and Appendix A, the “Personal Goal Sheet” included a 4-point rating scale in which John circled his initial performance rating on an individual chart related to each goal/skill area with response choices ranging from “big problem” to “really good.” It also included a 4-point rating scale in which the child could rate the goals’ level of importance ranging from “Not really important” to “Most important.” Corresponding client and parent self-reported post-test scores for each CO-OP goal are provided in Table 4. Improvements were noted for each goal skill area by both John and his mother.

The observation-based Performance Quality Rating Scale (PQRS) was also rescored at the conclusion of the intervention. This provided an objective measure in addition to the
COSA’s subjective data. Table 4 provides the post-test PQRS scores for the three identified goal skill areas. Scores rose for all three CO-OP long-term goal skills. Additionally, provided below are the short and long term goals with detailed outcomes and progress that was made in each goal at the study’s conclusion. In accordance with identified models of practice and their client-centered nature, all of these goals were self-identified by the client through collaboration with his parents. They represent skills the client expressed a desire to work on in therapy and improve upon.

*Short Term Goal 1 Related to Long Term Goal #1.*

John will square body to basket and bend knees before releasing ball with one cue in 4/5 attempts by week 3/5 of intervention.

This short term goal was met by week 3/5 of intervention. By the second week of the intervention period, John was independently bending his knees before releasing the ball 100% of the time. John was able to square his body to the basket in preparation for shooting during the third week of intervention with one verbal cue. John was consistent with these precursor steps to shooting throughout the remainder of the intervention.

*Short Term Goal 2 Related to Long Term Goal #1.*

John will push ball upwards in an arcing motion towards the backboard with functional hand placement on ball with one cue in 4/5 attempts by week 4/5 of intervention.

This goal was met by week 4/5 of the intervention period. John accomplished consistent functional hand placement on the ball and pushed the ball upwards in an arcing motion towards the backboard with one verbal cue in 4/5 attempts. John’s hand placement directed corresponded with his ability to push the ball upwards in an arching motion. For example, in 1/5 attempts when John did not shoot the ball upwards, his hands were also not placed on the ball in a functional
position that gave him enough power to arch the ball. This concept was made obvious to John during practice trials. He made active effort to correct and prevent errors in both hand placement and pushing the ball upwards. An especially useful cognitive strategy that John verbalized before shooting in order to emphasis this was, “left hand back of the ball, right hand side of the ball.”

**Short Term Goal 3 Related to Long Term Goal #1.**

During each intervention session, with two cues from the therapist, John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session to help promote long term goal #1.

John consistently met this goal in each session. He was able to verbalize the GOAL-PLAN-DO-CHECK global strategy before shooting the ball during practice sessions. He understood the meaning of each component part of the strategy and their connection to shooting a basketball. John verbalized at least two of the domain specific strategies each session. These strategies were described in detail in the intervention section. Strategies were consistently discussed and verbalized before each set of shooting trials with two or less cues for recollection.

**Long Term Goal #1.**

John will successfully shoot a basketball into an eight foot basketball hoop independently from ten feet away 2/10 attempts by week 5/5 of intervention.

John made progress toward meeting this goal; although it was not met. By the end of the intervention period John was close to accomplishing this goal. Week three was his most successful week; John independently (e.g. without additional verbal cues aside from an initial review of strategies) successfully shot a basketball into an 8 foot basketball hoop in 1/10 attempts from a shorter 8 feet distance. He was also able to hit the rim a total of 6/20 attempts from this distance. Using a lighter playground ball, John was successful at shooting the
basketball into the hoop in 2/20 attempts from a 10 feet distance and hit the rim in 8/20 attempts. During week four, using a basketball and from the 10 feet distance, John successfully made 0/20 attempts, but hit the rim in 4/20 attempts. During the fifth and final week of intervention, a slight change in intervention occurred as a result of the inability to use the client’s usual home basketball hoop set at the proper 8 foot height. A modified intervention was conducted at a neighbor’s higher basketball hoop which was set at ten feet. Using a lighter playground ball the client completed two sets of ten attempts from a ten foot distance. In 4/10 and 6/10 attempts he shot the ball high, up, and out, and was reasonably close to making a basket. In the final trial using a basketball from a ten foot distance, he was reasonably close in 3/10 attempts.

It should be mentioned that John achieved all of the precursor steps to shooting; however, he lacked consistency at shooting the regular basketball into the hoop. As coordination, motor planning, and strength continue to develop along with continued cognitive strategy use, it is reasonable to assume that his success at shooting a basketball will increase.

An important element of the CO-OP approach is the child’s ability to self-evaluate performance and use cognitive strategies. This is accomplished through the PLAN and CHECK components of the global strategy. John made notable improvements in his ability to self-evaluate and use strategies throughout the intervention process. Most significantly he was consistently able to correctly assess how or why he was successful or unsuccessful when shooting the basketball. This was evident through comments such as, “I did not push the ball out” or “I only pushed the ball up.” Effective cognitive strategy use was also apparent through self-evaluating comments like, “I thought about the right things and it worked!” Another marker of success when using the CO-OP approach is the child’s ability to bridge cognitive strategies thereby transferring learning to other similar skills. John demonstrated this ability as he bridged
the push arms “up and out” strategy to other tasks he enjoyed such as throwing a football and throwing a weighted ball against a rebounder in the therapy clinic.

The “Personal Goal Sheet” was used as a means for the client to report his progress in shooting a basketball. Both before and after intervention John rated this task as “most important” to him. Before intervention he reported that he was “okay” at shooting at basketball, upon completion of intervention he reported he was “really good” at this skill. In addition to improved parent reported scores related to performance, the client’s mother also provided some worthwhile additional comments. She noted improvement with other skills related to basketball including John’s focus and ball handling.

The points of breakdown originally determined through the DPA process related to John successfully shooting a basketball included not knowing how to hold the ball, not knowing how to position his body when shooting the ball, and not knowing how to look at the target while preparing his body for shooting. John made vast improvements in all of these breakdown areas as evidenced through his improved PQRS score of 4 (pre-test) to 7 (post-test).

Based on the intervention, various meanings and purposes of the client were inferred. The client interpreted the occupational form appropriately and as expected for a child his age. He achieved perceptual meaning through his engagement with the physical aspects of the form including his sense of body positioning and relationship of his moving body parts to the basketball and the basketball hoop. He actively sought out elements of the form (basketball) to accomplish the task. Symbolically, John associated sociocultural meaning to the occupational form as basketball is a common task that children participate in at school with their peers. He also recognized the goal of shooting the ball into the net and understood how to do so. In addition, he thought about how to do so through using the appropriate cognitive strategies.
Affective meaning associated with the task was apparent through emotion as the client enjoyed playing basketball and was excited upon success. The client also had a strong sense of purpose as related to shooting a basketball. He had an obvious motivation to improve his shooting skills for increased participation in gym class and to play with his father at home. Intrinsic purpose was inferred through the client’s apparent desire to improve his abilities. Extrinsic purpose was likely felt through feeling a desire to perform better in front of his peers.

**Short Term Goal 1 Related to Long Term Goal #2.**

John will gather and put away all necessary supplies for making sandwich and packaging snack with one visual cue by week 3/5.

John did not accomplish this goal by week 3/5; although he made great progress. During week three, John utilized the visual aide, but with additional directions for its use. He also required five extra verbal cues in order to gather all materials and put everything away before proceeding to eat his sandwich or pack his lunch bag. By the final week of the intervention period John was able to use the visual aide more efficiently with one verbal cue. He was able to focus on the task and remembered that putting materials away was an integral part of the process. This decrease in verbal cues required for task completion is noteworthy as this contributed to a significant decrease in the time it took him to perform the entire task.

**Short Term Goal 2 Related to Long Term Goal #2.**

John will make a peanut butter and jelly sandwich including organizing task, preparing sandwich with proper amount of jelly and peanut butter, and cleanly cutting off bread crust without crushing the sandwich with one verbal and one visual cue by week 5/5 of intervention.

John met this goal by week 4/5 of the intervention period. He was able to independently gather the necessary supplies and utensils and organize the task accordingly. He prepared the
sandwich using the previously designated three scoops of peanut butter and three scoops of jelly without a cue. Upon the typical, simple review of the cognitive strategies he utilized while cutting the crust off his bread he was able to apply them and successfully cut the crust without crushing the sandwich, with a clean, neat cut. Especially useful strategies were, “no chicken wing” and “light as a feather.” The mess created from sandwich preparation was minimal and age appropriate. John made notable progress with the task of preparing a sandwich. The amount of time it took him to complete the task successfully also decreased, serving as further evidence of his improved efficiency, focus, skill in utensil use, and organization.

**Short Term Goal 3 Related to Long Term Goal #2.**

During each intervention session, with two cues from the therapist, John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session to help promote long term goal #2.

John consistently met this goal in each session. He was able to verbalize the GOAL-PLAN-DO-CHECK global strategy before each lunch preparation and packing was practiced. He understood the meaning of each component part of the strategy and their connection to making and packing his own lunch. John verbalized at least two of the domain specific strategies each session. The specific strategies that were useful were described in detail in the intervention section. Strategies were consistently discussed and verbalized out loud before each task and proved to be especially useful related to cutting his sandwich.

**Long Term Goal #2.**

John will prepare a three item lunch including making and packaging individual items and placing them into his personal lunch bag with one verbal and visual cue per item by week 5/5 of intervention.
John achieved this goal by week 5/5 of the intervention period. John was successful at gathering and putting away all necessary materials while utilizing the visual aide with one or less verbal cues per item. He neatly prepared and cut a peanut butter and jelly sandwich and packaged a snack item of choice with one verbal cue or less. By week five, he then simulated packing the sandwich, snack, and juice box and/or water bottle into his lunch bag with one verbal cue and one drawing utilized as a visual aide to show how the items would fit into the bag.

John made notable improvements in his ability to self-evaluate and use strategies throughout the intervention process in order to prepare and pack his lunch. He was able to consistently evaluate his cognitive strategy use and recognize their effectiveness. This was evident through comments such as, “Look no chicken wing arm” or “I’m saying it to myself, three scoops of jelly,” “Look how clean it is, no mess, I did that!” “That sandwich looks awesome!” and “Lighter things on the top in my lunch bag.” It should also be mentioned that the “arm straight as a railroad track” cognitive strategy was created independently by John, providing further evidence of learning that occurred through the intervention. Bridging of strategies to similar tasks is also an important goal of the CO-OP approach as a means for transferring learning to related skills. This was apparent as he completed a fine motor task at the table noticing that his arm was “straight like a railroad track” similar to how it was while cutting his sandwich.

The “Personal Goal Sheet” was used as a means for the client to report his progress in preparing and packing his lunch. Both before and after intervention John reported that this task was “most important” to him. Prior to intervention he reported that preparing and packing his lunch was a “little” problem for him. At intervention conclusion he reported that he was “really good” at the task. In addition to improved parent reported scores related to performance of this
skill, the client’s mother also provided some worthwhile additional comments. She noted a significant improvement and expressed the family’s motivation to keep working towards further improvements and progress maintenance in this task and other related skills.

The points of breakdown determined through the DPA process related to John creating and packing his own lunch bag at evaluation included various components of the task. It is worthwhile to comment on the progress made related to each breakdown area. Through utilizing the visual cue, John was able to recognize all the ingredients and supplies required without frequent cueing from an adult. Using cognitive strategies, he no longer pressed too hard on his sandwich while cutting off the crust. Designating three scoops each of peanut butter and jelly proved effective to prevent him from using too much. Through cognitive strategies and practice, he made great progress in recognizing how to position his body, the sandwich, and the knife while cutting, as well as cutting cleaner lines. Finally, the visual aide also helped decrease the amount of cues from adults that John was requiring to put the supplies away. John made vast improvements in all of these breakdown areas as evidenced through his improved PQRS score of 4 (pre-test) to 8 (post-test).

A variety of meanings and purposes were inferred through the intervention all of which were typical of a child John’s age. Personal meaning was likely derived through actively interpreting the occupational form which included the necessary supplies for making and packing his lunch. Perceptual meaning was obvious through the client’s ability to interpret the physical aspects of the form. This included his sense of position in space and body’s relationship to task related objects; including how he oriented his body to carry objects and his body positioning while cutting his sandwich. Symbolic meaning was attributed to the occupation as the client was able to see the relevant aspects of the form and recognize what they were to be used for.
Affective meaning is contrived through the emotional experience of the task. This was apparent during this occupation as the client was excited to prepare lunch and felt accomplished upon doing so. It can be assumed that various purposes were also attributed to the occupation. The client was motivated for the task. It appeared that preparing lunch gave him a sense of independence and satisfaction, thus his intrinsic purpose to master the occupational form appeared to be high. Extrinsic purpose was assumed because the client wanted to learn how to prepare his lunch and was excited to pack his lunch for kindergarten in the fall. Through discussion, he realized these tasks were connected; thus he was also motivated to fulfill his role as student and son.

**Short Term Goal 1 Related to Long Term Goal #3.**

John will tighten the laces on his donned shoes using both hands in coordination with two or less verbal or visual cues by week 3/5 of intervention.

John met this short term goal by week 3/5 of intervention. Through verbalizing the cognitive strategies, “flat laces are tight laces,” “fingers facing each other,” and “tighten one row at a time,” before attempting the task, he was able to make significant improvements at tightening his laces. He was able to consistently tighten one row at a time with one or two verbal cues or one visual cue (e.g. pointing to the next correct row of laces). A noted improvement was also made in his ability to recognize when his laces were tight enough to begin the shoe tying process.

**Short Term Goal 2 Related to Long Term Goal #3.**

John will loosen the laces, pull out the tongue, use one hand to stabilize the back of the shoe, and don his shoes with two or less verbal or physical cues and minimal physical assistance by week 4/5 of intervention.
John met this goal during week 4/5 of the intervention period. He made rapid progress at independently loosening his laces smoothly and with good coordination; he accomplished that task by week 3/5. The cognitive strategy, “bumpy laces are loose laces” proved effective for mastering that component of the task. Independently pulling out the tongue and then making his shoe wide enough in order to fit his foot with the orthotic inside was accomplished through utilizing the strategy of making his shoe “monster size.” Stabilizing the back of his shoe was challenging and required a verbal cue for motor planning in order for him to use his hands for stabilization (not his other foot) and to look at what he was doing while completing the task. Minimal physical assistance was still required in order to hold the shoe open and for added stabilization while John pushed his foot with his orthotic down and into the shoe. A verbal cue was also necessary while John pushed his foot into the shoe for visual attention and in order for him to use one of his hands to hold his foot in the orthotic while pushing it into his shoe because at times his foot had a tendency to slip forward into the shoe before the orthotic. John also demonstrated increased consistency with this task during the intervention period as evidenced by him completing the task with a similar performance level during the final week of intervention.

**Short Term Goal 3 Related to Long Term Goal #3.**

During each intervention session John will discuss the GOAL-PLAN-DO-CHECK global strategy and verbalize at least two domain specific strategies learned that session with two cues from the therapist to help promote long term goal #3.

John consistently met this goal in each session. He was able to verbalize the GOAL-PLAN-DO-CHECK global strategy before putting on his shoes. He understood the meaning of each component part of the strategy and their connection to the task. John verbalized at least two of the domain specific strategies each session related to donning his shoes with his orthotics. The
specific strategies that were useful were described in detail in the intervention section. Strategies were consistently discussed and verbalized out loud before each practice trial and proved to be especially useful related to donning his shoes and orthotics. 

**Long Term Goal # 3.**

John will don both of his tennis shoes (with orthotics), tighten the laces, and complete the first knot of shoe tying with two or less verbal or visual cues per shoe and minimal physical assistance by week 5/5 of intervention.

While John made great progress toward this goal and met both related short term goals, he did not meet this long term goal. In order to combine all of the component skills and perform the task completely, John consistently required more than two verbal, visual, or physical cues per shoe. Cues were commonly required for loosening both shoes first before removing the orthotics or attempting to put his foot into either shoe. Once each shoe was donned, cues were often needed to fully tighten the shoe before attempting the other one. The minimal physical assistance required for shoe stabilization is appropriate for the task given its high level of difficulty because of the orthotics. As mentioned, by case study conclusion John excelled at tightening his shoe laces. John was able to complete the first knot of the shoe tying process without a cue by week 5/5 of the intervention period. A significant decrease in the time it took John to don his shoes also occurred by intervention conclusion as a result of his increased focus and attention to the task. John displayed feelings of accomplishment upon his increased ability to complete the first step of shoe tying.

John made notable improvements in his ability to self-evaluate and use strategies throughout the intervention process in order to don his shoes with his orthotics. He was able to
consistently evaluate his cognitive strategy use and recognize their effectiveness. This was evident through comments like, “I thought about things and it worked.”

The “Personal Goal Sheet” was used as a means for the client to report his progress donning his shoes with his orthotics. Both before and after intervention John reported that this skill was “most important” to him. With regard to his performance donning his shoes with orthotics before the intervention he stated that he had a “big” problem doing it. After the intervention he reported that he now had a “little” problem with the task. It should be recognized that he still noted improvement in his performance, even with this difficult skill. In addition to improved parent reported scores related to performance of this skill, the client’s mother also provided some worthwhile additional comments. She noted lots of improvement. Although his orthotics made the task difficult, John was able to grasp the instruction and the family will continue to work using the tools provided. She felt that John was very close to achieving the task completely, but was not quite there yet.

The points of breakdown determined through the DPA process related to John donning his shoes with his orthotics were also improved upon. John learned how to loosen the shoe laces and position his fingers in alignment, then stretch his shoe before putting his foot with the orthotic on inside. The verbal strategy of making his shoe, “monster size,” was also especially useful. He also increased his coordination and body awareness for the task in order to position his body/hands in order to push his foot in the shoe. This included visually focusing on the task and using his hands and not his other foot as a compensatory means to push his foot into his shoes. John successfully learned how to tighten his laces consistently once his shoe was donned and that “flat laces were tight laces.” He increased his ability to recognize what steps to
complete the entire process although cues were still needed. John made improvements in all breakdown areas as evidenced through his improved PQRS score of 2 (pre-test) to 7 (post-test).

Numerous age appropriate and anticipated meanings and purposes were inferred through the intervention process. Meaning to the client was apparent through his effort at figuring out the occupational form (e.g. shoes, laces, and orthotics). Perceptual meaning was crucial for this task as the client learned how to recognize his body position and the relationship between how his body parts moved in relation to the elements of the form. This included his hand/finger positioning for tightening and loosening the shoes laces, pushing his foot into the shoes, and using his hands for shoes stabilization. Symbolic meaning is attached to donning shoes as it a common task that children his age perform. Affective meaning was apparent through the client’s sense of accomplishment at task completion and at times his frustration at the difficulty that his orthotics presented. Purpose was derived through the client’s motivation and intent in engaging with the form to put on his shoes and orthotics. Extrinsic purpose was likely as the client may have been inspired to accomplish the task by external factors such as putting on his shoes to go play outside, go to school, or go somewhere with family. Internally, it was inferred that the client wanted to excel at the task as a means for personal mastery and increased independence.

**Long Term Goal #4.**

John will independently complete an age-appropriate maze without pencil marks touching any guidelines in ¾ trials by week 5/5 of intervention.

John made progress towards this goal; although he did not meet it. By week 5 of intervention in ¾ trials pencil marks touched guidelines only one time per maze. His pencil control skills improved during intervention as evidenced by smoother line production; however he still required one to two verbal cues per trial to slow down and for awareness of approaching
boundaries or obstacles in the maze. No significant differences were noted in performance related to the type of maze completed (e.g. those requiring more angular, sharp lines or those requiring more wavy lines). While practicing mazes, John first used his adaptive pencil, then traced over his pencil lines with a marker/colored pencil. His initial performance using his pencil was consistently better than when he used the marker/colored pencil to trace. This is not surprising because tracing increased the difficulty level of the task. Tracing remained a challenging visual motor integration task for the client but improvements in accuracy were noted during the last two weeks of intervention as traced lines were closer to the original lines. The client continued to display a lack of dynamic finger movements while completing mazes or related fine motor precision paper-pencil tasks. During the other described fine motor activities in the intervention section, dynamic finger movements seemed to be developing further. With this said, verbal and physical cues were required for John to actively use his fingers during tasks and to limit compensatory techniques, such as stabilizing materials and objects on his body or the table. For example, when completing the tissue paper art project John wanted to crumple the paper against his body instead of using only his fingers on his left hand. When cued, John responded appropriately.

Meanings and purposes related to the interventions provided to address this goal were as expected for a child the client’s age. Meaning was obviously assigned to the interventions provided through the client’s interaction with the various occupational forms provided (e.g. mazes, fine motor materials, handwriting worksheets). He accurately attributed perceptual meaning to the physical aspects including the sizes and shapes of objects and how he needed to use his body, especially his hands to complete presented tasks. Affective meaning was apparent as the client experienced very emotions when encountered with the occupational forms.
Typically the client was excited about participating in fine motor activities; although, on rare occasions he was indifferent toward completing handwriting worksheets. The client displayed purpose through his motivation and desire to reach the goal related to each task, such as completing a maze or completing a worksheet. It is likely that the also felt extrinsic purpose related to the interventions because he connected these tasks to similar paper-pencil tasks required at school.

**Long Term Goal #5.**

John will independently initiate and maintain an appropriate posture for seated table tasks for five minutes by week 5/5 of intervention.

John made progress towards this goal; although he did not meet it. In accordance with this goal, the posture prompt visual cue was utilized. John was able to maintain an appropriate posture for seated tasks for the 5 minute time frame but still required use of the visual cue. Once proper posture was initiated with the cue, no other cues were needed during the five minute span. It was also noted, that when seated properly John’s focus and attention to presented fine motor and writing tasks improved and less cues were required for attention and to complete tasks. John could consistently recall all of the items on the posture prompt with one to two verbal cues, therefore it is reasonable to assume that use of the posture prompt visual cue can be faded and John will achieve independence with initiation and maintenance of an appropriate posture in preparation for the numerous seated work tasks he will complete in kindergarten. Ultimately this may increase his attention, focus, and improve his overall performance in the classroom setting and at home while doing homework.

Meanings and purposes related to the interventions related to this goal were as expected for a child John’s age. Meaning was derived through the client’s interaction with the presented
forms. This included utilization of the visual posture prompt provided during intervention and verbal cueing from adults. In addition, perceptual meaning was apparent as John improved his ability to recognize his body position in space while seated as well as realize how his moving body parts impacted his posture. He was able to make physical adjustments accordingly. Intrinsic purpose was implied through this motivation to meet this goal, as he was aware of the desired five minute time frame. Extrinsic purpose was also present as again, he realized the importance of good posture maintenance in the school setting.

School Consultation Goal.

Provide consultation to developmental kindergarten teacher to reinforce fine and gross motor skills and handwriting development, provide general resources and suggestions, implement classroom aides for routine management, and provide group led activities by week 5/5 of intervention.

This goal was achieved by the end of the intervention period. As described in the intervention section this goal was accomplished through consultation and direct service. John’s classroom teacher was receptive and interested in all presented ideas and advice throughout the case study. She expressed intentions to implement many of the suggestions into her classroom environment. John and his fellow students all responded well to the group led activities conducted as part of the intervention. John participated well with minimal additional cues. He required assistance during the fine motor activity with regard to following directions and motor planning aspects of the task (e.g. how to properly glue together the leprechaun’s beard). Both the teacher and John were very interested in and receptive to the desktop visual aide that was introduced to help John complete his morning classroom more efficiently and with fewer cues. John reported that he was using the tool while at school.
Home Programming/Education Goal.

Provide John and his parents a core/upper body strengthening home exercise program, home fine and visual-motor activities program, relevant resources, and CO-OP strategy lists for goal skill areas by week 5/5 of intervention.

This home programming/education goal was met by conclusion of the intervention period. As described in the intervention section, a wealth of materials were provided to John and his parents including a core/upper body strengthening home exercise program, home fine and visual-motor activities program, relevant resources, and a CO-OP summary strategy list for goal skill areas. John and his family were open and receptive to all of the programming and education materials and expressed a strong desire and willingness to implement suggestions upon case study completion. Each material provided was thoroughly reviewed and all questions were answered to ensure understanding and increase the likelihood of proper carryover into the home.

Follow-Up

Per email discussion with the client’s mother following the intervention period she provided positive feedback from the family’s perspective regarding changes in John in other areas of his life outside the formal goals. She reported noted improvements in his motivation and attention span to “get through” seated tasks. She felt strongly that this would benefit her son as he transitions to all day kindergarten. His mother also believed that John learned how to respect another person of authority and she noticed an increase in motivation to play basketball with his father.

An additional plan for follow-up was established with the client’s parents and his teacher. It was determined that email would be a feasible means of communication with John’s classroom teacher in order to follow-up regarding implementation of classroom exercises, handwriting and
fine motor suggestions, and for monitoring use and effectiveness of the desktop visual aide for John’s morning routine. Continued follow-up would occur with the family in the form of email or telephone to further assess utilization and effectiveness of the in home visual aids for routine management provided during intervention, home exercise programming, and the use of CO-OP strategies for continued performance of goal-related skills. This follow-up was completed approximately ten days after the intervention period and the client’s mother stated via email that they were continuing to use the home visual aids. She reported that John was using the visual cue cards appropriately (e.g. only moving things when he was done with them).

**Conclusion**

**Discharge**

Due to the nature of the case study, at termination the client was discharged from occupational therapy services provided in the home and in his developmental kindergarten classroom. It was determined that the client would continue to receive outpatient services for one hour per week. Occupational therapy goals in the clinic would still focus on preparatory skills to promote growth for kindergarten in the fall including skipping rope, dynamic finger movements during fine motor tasks, and catching and throwing skills.

Additional elements of discharge planning included the core, upper body, and hand strengthening exercises home exercise program described in the intervention section; although reviewed prior to discharge as part of the intervention process, it was designed to be continued upon case study completion to promote continued strength building and coordination. The exercises were easily modifiable for use as the client grows and his strength increases. All exercises were demonstrated and discussed with pictures taken as needed. The fine and visual-motor manual was also distributed to the client and his parents during session eight in order to reinforce and promote growth of fine and visual-motor integration skills at home, especially
during the summer months in preparation for kindergarten in the fall. The parent was given opportunity to review all exercises and activities and to ask questions. The client’s parents were provided the occupational therapy student’s contact information and were encouraged to contact her with any questions or concerns. Further discharge suggestions included summer programming in order to reinforce fine motor skills, promote socialization, and to provide structure while school was not in session. Information was provided about a handwriting program offered through Toledo Children’s Hospital Totab Rehab clinic. The client was also encouraged to continue engaging in those activities he participated in outside of therapy including karate and swimming.

In the school setting, discharge planning included continued use of the desktop picture schedule for John’s morning routine and the posture prompt when applicable. His teacher was also encouraged to incorporate the sensory motor strategies and fine motor/ handwritting strategies provided during the intervention period as able. Contact information was provided to address future questions.

**Implications for Models of Practice**

This case study has various implications for the models of practice that were utilized. Treatment methods recommended through the CO-OP approach, such as guided discovery and cognitive strategy use, helped the client make gains and improve occupational performance in his chosen goal skill areas. These positive outcomes further validate CO-OP approaches in occupational therapy practice both inside and outside the clinic. It also revealed the benefits of using the CO-OP approach combined with the model of human occupation (Kielhofner & Burke, 1980). These two client-centered treatment approaches were well suited in combination to provide intervention to a pediatric client both inside the clinic and his home and at his school.
Both models draw on a dynamic systems perspective in which the child, the task, and environmental factors are intrinsically linked with a core value placed on the value of occupation as a means for development and health. The client improved occupational performance in his three goal skill areas outlined through CO-OP, which ultimately will allow him to better fulfill his roles and routines of childhood.

Further implications exist in the innovative nature in which the evaluation process was completed. In order to accommodate the principles of both models, evaluation procedures were creatively adjusted. The CO-OP approach recommended using the Canadian Occupation Performance Measure (Law et. al., 1998). This was substituted the Child Occupational Self-Assessment (COSA, Keller, Kafkes, Basu, Federico, & Kielhofner, 2006) as an adequate tool used to capture the child’s perceptions of his own occupational performance and importance of everyday activities. The format of the COSA was further adapted to accommodate for the child’s young age in order to make performance and importance rating simpler. These modifications were appropriate and effective and would be recommended for future application when using these models in collaboration.

**Implications for Research**

The success of this case study in applying a new, unique model of practice with a young, pediatric client warrants further research. The client’s increased occupational performance in a variety of motor-based skills upon discharge from the case study highlight the treatment approach’s effectiveness. The results of the case here complement the positive outcomes from the CO-OP approach detailed in the introduction section; however, new areas of study can are worth exploration. Although literature exists regarding the use of CO-OP with younger children including Mandich, Polatajko, and Miller in 2001 (as cited in Polatajko & Mandich, 2004) and
Taylor and Mandich (as cited in Polatajko & Mandich, 2004), research that continues to investigate the use of CO-OP with a younger age bracket, ages five to seven, would be beneficial. This research will continue to validate the use of CO-OP with this population. It may also yield more specific guidelines, in addition to those that already exist, about modifications that may be made in order to improve outcomes over time and that promote generalization and skill transfer. Related research efforts may also delve into the use of CO-OP approaches and their effectiveness in variety settings of childhood such as the therapy clinic or the home. This case study applied CO-OP methods in both settings; perhaps case studies and experimental studies would produce concrete information and data about the model’s usefulness in both areas.

The case study client had recently been diagnosed with a non-verbal learning disability. The client’s non-verbal learning disability did not limit CO-OP’s effectiveness in any obvious ways in this specific study as evidenced by the client’s success and responses to treatment. Perhaps research that explores the approach with other diagnosis and common conditions of childhood, like learning disabilities, would be advantageous. Children with learning disabilities may have the cognitive and communication capabilities to respond to CO-OP methods, but research that provides more condition specific guidelines and suggestions would contribute to ease of use of the model.

**Innovation of Case Study and Contributions to Occupational Therapy**

This case study demonstrated innovative qualities throughout its duration. Children receiving outpatient occupational therapy through Toledo Children’s Hospital usually do not also receive therapy inside their home as the client did. In addition, the case study also offered the client the opportunity to receive occupational therapy services in his developmental kindergarten classroom. These were services that otherwise would not have been provided. Continuous effort
was made to achieve consistency in the strategies and approaches used by the client’s family, teacher, and occupational therapist, in order to prepare John for kindergarten. This was accomplished through open communication regarding therapeutic activities and modifications, educational materials, recommendations, and follow-up planning.

The Cognitive Orientation to daily Occupational Performance (CO-OP) approach is a new treatment method in the field of occupational therapy designed for children with various conditions and skill levels. A unique element of the case study was that CO-OP methods were used in both the clinic and home settings (five sessions in each) to promote skill generalization across environments. Although well suited, CO-OP had not been utilized previously with the client. It proved to be a beneficial approach that helped improve the client’s performance of various skills. Additionally, the combination of CO-OP and the model of human occupation (Kielhofner & Burke, 1980) was innovative in its application in order to create client-centered goals and provide holistic, comprehensive occupational therapy services.

In closing, this case study supports occupational therapy’s roles and contributions in the various environments of childhood. It also highlights the potential use of treatment approaches that go beyond conventional methods. As occupational therapists, this is a calling to educate ourselves about new intervention techniques and models of practice in order to promote participation and improve occupational performance for children with a variety of diagnosis and conditions in those most desired and meaningful occupations of childhood and throughout the lifespan.

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for allowing me to learn and experience the world of outpatient and inpatient pediatric occupational therapy during this Capstone experience. I would also like to thank my outstanding site mentor, Liza Gleckler, for sharing her experience, knowledge, and expertise with me throughout this case study. Her patience, mentorship, and guidance are greatly appreciated. In addition, I am grateful for the dedication, support, and countless hours that my faculty mentor, Melanie Criss, dedicated to me and this project. Without both of these great mentors, this would not have been possible. My sincere thanks to my client and his family for allowing me to come into their home and dive into their lives for this case study. I could not have completed this project without them and the experience and relationships we formed will be cherished. I also want to thank my classmates for their support and encouragement over the past three years. I am honored to call them my future colleagues. Finally, thanks to my family for their never ending encouragement. They have always believed in me and been my constant support network.
References


*Developmental coordination disorder.* Retrieved from


http://www.ldonline.org/article/Nonverbal_Learning_Disorders
Table 1.

*BOT-2 Scaled Scores and Age Equivalencies at Initial Testing*

<table>
<thead>
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<th>Testing Areas</th>
<th>Percentile Rank</th>
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Table 2.

*BOT-2 Scaled Scores and Age Equivalencies at Final Testing*

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<td>Manual Dexterity</td>
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Table 3.

*John’s Modified Pre-Test COSA and PQRS Scores*

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<th>PQRS (Rated by RL)</th>
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<td>Performance</td>
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<td>Pre-Test</td>
<td>Pre-Test</td>
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**GOAL**

- **Shooting Basketball**  4 (Child rated)  3 (Child rated)  4
  2 (Parent rated)
- **Making/Packing Lunch**  4 (Child rated)  2 (Child rated)  4
  3 (Parent rated)
- **Donning Shoes**  4 (Child rated)  1 (Child rated)  2
  2 (Parent rated)
Table 4.

*John’s Modified Post-Test COSA and PQRS Scores*

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<td>Donning Shoes</td>
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</tr>
<tr>
<td></td>
<td>3 (Parent rated)</td>
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Appendix A

NAME______________________________

GOAL #1______________________________

Before

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After

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<td>1</td>
<td>Big problem</td>
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<td>Okay at doing this</td>
<td>Really good at this</td>
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HOW IMPORTANT IS THIS GOAL?

Before

<table>
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<tr>
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<td>Not really important</td>
<td>Important</td>
<td>Really important</td>
<td>Most important</td>
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After

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<td>Not really important</td>
<td>Important</td>
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Appendix B

AM I READY TO DO WORK
AT MY DESK OR AT THE TABLE???

_____ Is my back glued to my chair?
_____ Are my feet on the ground?
_____ Are my legs straight under the desk or table?
_____ Is my helper hand holding my paper?
_____ Do I have my pencil with my gripper and band?
_____ Is my chair scooted in?
Appendix C
Appendix D
Appendix F

Enabling Occupation in Children: Cognitive Orientation to daily Occupational Performance (CO-OP)
Helene J. Polatajko and Angela Mandich, 2004

What is the CO-OP Approach?

- Designed for children who have a difficult time learning new motor-based skills
- Problem solving approach applied through the use of strategies and guided discovery
- Therapist guides child to discover and learn new strategies to achieve goals
- Skills are learned through child, task, and environment interaction
- Cognition plays a role in motor learning

CO-OP Objectives

- Skill acquisition—typically everyday skills a child is expected to, needs to, or wants to perform
- Cognitive strategy use—teach strategies to solve performance problems
- Generalization of learning—use new skills and strategies outside of therapy
- Transfer of learning—learn to adapt skills and strategies to demands of new skills
Key Features

- **Client-chosen goals**—collaboration between child, parents, and therapist

- **Dynamic Performance Analysis**—observation based process of identifying problems or performance breakdown (i.e. what specific parts of task are hard? Where did errors occur?)

- **Cognitive strategy use**—learning to think about what to do and how to do it, identify strategies, thinking “out loud,” therapist and child “talk through” performance
  
  - *Global strategy:* GOAL, PLAN, DO, CHECK—mnemonic supports problem solving process
    
    - GOAL: What do I want to do? Specification of skill/goal and subskills
    - PLAN: How am I going to do it? Elaborating on specifics of skill, often written down, game plan for performance
    - DO: Do it! Carry out plan, actual performance of skill
    - CHECK: How will did my plan work? Discussion, comparison, outcome, consequence
  
  - *Domain Specific Strategies:* Specific to a task or part of a task
    
    - Body position—“Sit with back against chair”
    - Attention to doing—“Eyes on ball”
    - Task specification/modification—“Pencil grip” or “Let me do it with you”
    - Supplementing task knowledge—“Using directions” or “Make a letter like this”
    - Feeling the movement—“Feel the position of your hand”
    - Verbal motor mnemonic—“Helper hand”
- Verbal rote script—“Dribble, dribble, shoot”

- **Guided Discovery**—therapist leads child to solve problems, helps build confidence
  - Four catch phrases:
    - One thing at a time!
    - Ask, don’t tell!
    - Coach, don’t adjust!
    - Make it obvious!

- **Enabling Principles**
  - Make it fun!
  - Promote learning!
  - Works toward independence!
  - Promote generalization and transfer!

- **Parent involvement**—active role in helping child succeed, reinforce strategies in other environments

- **Intervention format**—ideally 10 intervention sessions, each an hour long
  - Overall program structure: Preparation, acquisition, and verification phase
Appendix G

Cognitive Orientation To daily Occupational Performance Strategy
 Summary Sheet

GOALS

1) To learn to shoot a basketball into the net
   a. Look where I am aiming-the square on backboard or net
   b. Place left hand on the back of the ball and right hand on the side of the ball
   c. Use “strong hands” on ball
   d. Push ball hard and strong
   e. Bend knees before shooting and jump
   f. Push arms straight up and out
   g. Make ball and arms look like a “rainbow” when going through air
   h. Get body straight to basket/target before shooting

2) To learn to prepare a 3-item lunch
   a. Hold knife “like a fist”
   b. Remember to get out and put all supplies away
   c. Arm/hand facing sandwich when cutting
   d. No “chicken wing” or resting arm on table/counter
e. Arm is “straight like a railroad track”

f. Try not to move plate or sandwich when cutting

g. Right hand “light as a feather” when putting on PB& J and cutting sandwich

h. Use only 3 scoops of peanut butter and jelly

i. Handle of knife is in hand

j. Light items on top, heavy on bottom when packing lunch

k. Use picture chart as needed for remembering items

3) To learn to put on tennis shoes with orthotics

a. Loosen both shoes first

   i. Pull laces one row at a time, fingers facing each other when pulling

b. Make shoe “monster” size when putting foot in

c. Look at what you’re doing

d. Bumpy laces are loose laces

e. Flat laces are tight laces

f. Use hands to help foot into shoe, NOT other foot/leg

g. Push foot down and into shoe before attempting to stand up

h. Use loop on back of shoe to hold onto while pushing foot in

i. Tighten laces last

   i. Tighten laces close to toes first, then go up, one at a time, fingers facing each other

j. Do first “X” of shoe tying, then through the “X”

**PLAN**-What do I need to remember? How am I going to complete task?

**DO**-Complete the task to the best of your ability!
CHECK-How did it work? What went wrong? What went right? What could I change next time?

Appendix H

Core, Upper Body, and Hand Strengthening Exercises for Home

Cross Crawl

Get ready by laying down placing right ear to floor while touching nose with left index finger and flexing right leg and hip while reaching right hand toward right foot. Keep all body parts on floor during motion. Alternate movements from side to side.

Crawl 10 strides. Increase amount as endurance and strength increases.

Starting position for the following partner exercises:
**Partner Bicycle**

Both partners sit on ground facing each other. Leaning back on forearms, put feet together and alternate pushing legs back in forth in a bicycle-like motion.

Do for 2-3 minutes. Increase amount of time as endurance and strength increases.

**Partner Elevator**

Both partners sit on ground facing each other. Put feet together and move legs up and down together fully extending and bending knees.

Do for 2-3 minutes. Increase amount of time as endurance and strength increases.

**Partner Tick Tock**

Both partners sit on ground facing each other. Put feet together and move legs like a pendulum going side to side.

Do for 2-3 minutes. Increase amount of time as endurance and strength increases.

**Partner Ball Pass**

Both partners sit on ground facing each other. Leaning backwards on forearms, one person grasps ball between his or her feet, raises legs to ceiling, then passes to the other person. The game continues raising legs while holding ball and passing it back and forth with feet.

Do for 2-3 minutes. Increase amount of time as endurance and strength increases.

**Hands & Knees**

Get on hands and knees. Reach one arm forward, relax. Reach other arm forward, relax. Kick one leg out, relax. Kick other leg out, relax.

Do as many repetitions as possible, first aim for 5. As endurance increases, increase repetitions.
Crab Crawl
Lay on back, raise body off ground using arms and legs, do not let body touch ground.
Do exercises forward, backward, and side-to-side.
Complete 10 crawling strides. Increase amount as strength and endurance increases.

Knee Push-Ups
Get on hands and knees. Complete push up, but keep knees on the ground for increased support and stability.
Complete as many as possible. Increase repetitions as strength builds.

Frog Jump
Bend knees, crouch to ground. Jump up, come back down, completely returning body to “frog” position.
Do 10 jumps, moving forward as you jump.

Wall Push-Ups/Chair Push-Ups
Push against wall. Complete multiple sets of 10 repetitions. While seated in chair push bottom off chair.
Do 10 repetitions.

Crunches
Lay on back. Bend knees. Reach toward knees, bringing shoulder blades off ground.
Complete as many crunches as possible. Increase as endurance and strength increases.

Jumping Jacks
Complete jumping jacks.
Complete as many repetitions as possible. Increase repetitions as endurance builds.
Wheelbarrow Walk

With a partner holding legs, use hands and arms, crawl forward.
Walk for as long as possible. Increase distance as strength and endurance builds.

Bear Walk

Walk on hands and feet, NO knees.
Walk as far as possible. Increase distance as endurance and strength increases.

Firefighter Crawl

Get on belly on the floor. Prop up on forearms and pull body forward with arms only.
Do as many strides as possible. Increase amount as endurance and strength increases.

Jumping/Hopping

Jump on one leg for 10 repetitions and side to side over a line/barrier for 10 repetitions.
Continue for as many repetitions as possible. Increase as strength and endurance increases.

Hand Strengthening

Use clay, theraputty, or play dough. Pull apart, roll, make into balls, squeeze, pinch using thumb and each finger in isolation, etc.

AND/OR

Retrieve small beads or coins that are embedded in substance.
Around the house and in the community

- Pushing grocery cart
- Carrying and putting away groceries
- Tug of war
- Crushing ice in a plastic bag for drinks
- Hopscotch
- Sweeping/vacuuming
- Carrying and putting away dishes
- Unloading washing machine and dryer
- Taking out the trash

Useful References

Core Concepts in Action by Sheila M. Frick and Mary J. Kawar
Appendix I

Fine Motor and Coordination Activities for Home

- Write on a vertical surface (i.e. binder, easel, etc).
- While playing games or doing tasks with use small objects/pieces
  - Pick up object with thumb and index finger and move to palm
  - Move objects from palm to fingers
  - Pick up objects one at a time while simultaneously holding two or more in the same hand while picking up the new objects without dropping those in hand
- Card games-encourage holding multiple cards in one hand
- Participation in cooking and meal preparation
  - Put sprinkles in bowl to pick up one at a time, tearing lettuce, pressing out dough, encourage utensil use (i.e. tongs), etc.
- Stringing activities
  - Beads, pretzels, cheerios
- Q-Tip painting and drawing
- Board games with small pieces
- Hole punching
- Pencil flip-while writing, flip pencil to use eraser, without using other hand or writing surface to stabilize
- Pencil walk-walk fingers up and down pencil using only fingertips
- Hold writing utensils and push off cap with the same hand
- Construction/building toys, especially
  - Pieces that snap together
  - Small pieces
- Pegboards
• Dice games
• Lacing activities
• Pick-up sticks
• Play dough
• Use chop sticks to pick up food, objects, game pieces, etc.
• Use tweezers to pick up small objects
• Matchstick towers
• Folding activities
  o Origami
  o Card making
• Using nuts and bolts
• Puzzles with small pieces
• Toothpick activities
  o Designs with grapes, cheese cubes, put toothpicks in play dough to make designs, then remove toothpicks
Visual-Motor Activities for Home

- Cutting
- Mazes
- Coloring
- Writing within guidelines
- Board games with movement components such as
  - Hungry, Hungry Hippos, Pop Up Pirate, etc.
- Copying designs, letters, shapes, pictures, etc.
  - Writing or drawing
  - Using objects such as sticks, noodles, rubber bands, toothpicks
- Connect the dots
- Tracing activities
- Word searches, letter searches (Color, highlight, or circle choices)
- Hidden pictures (Color in pictures)
- Picture difference activities (Color in differences)
- Catching and throwing games
- Dribbling and bouncing ball
- Throwing at target
- Computer games using mouse
- Bean bag toss games
- Balloon volleyball
- Hitting objects with tennis racket or paddles
- Bowling
- Trace around puzzle pieces, draw same design on paper, color, cut out, and assemble
- Creating designs from a model using
Blocks, straws, popsicle sticks, pipe cleaners, Legos, rubber bands

Appendix J

Classroom Sensory-Motor Ideas

General Principles and Suggestions:

- Activities may be completed during transition times, after an activity, before an activity, at the end or beginning of the day, or any other convenient time
- Complete activities for a specific amount of time or number of repetitions
- Using picture cards or a picture schedule with activities may be beneficial and increase students’ participation
- May increase attention and alertness levels
- Helps improve motor coordination

Body Criss-Cross Activities (Promote crossing midline)

- 10 times to body part using opposite hand
- Example: Left hand to right ear and back to the left side then; then, 10 times to body part with other hand-right hand to left ear and back to the right side
- Complete while standing
- EARS ONLY, SHOULDERS ONLY, KNEES ONLY, FEET ONLY
Sensory Motor Activities

- **Locker/Wall Pushes**: Pushing against wall/locker 5 times *
- **Marching**: Heaving marching like an elephant *
- **Jump**: In place, forward, or side-by-side *
- **Hop**: On one foot in place (provide external support if needed) *
- **Jumping Jack Legs**: Jumping jacks with legs only, “feet together, feet apart” *
- **Walk the line**: Toe to heel walking on a straight line *
- **Body squeeze**: In chair, knees to chest, and hug with arms (if needed, sit on floor with back against wall) *
- **Chair push-ups**: Push bottom up from chair seat using hands only (okay to use feet until arm strength is developed)
- **Hand squeezes**: Push hands together (like praying hands), pull apart with fingers cupped-follow up with self-imposed hugs *
- **Desk pushes**: While standing, lean on arms/hands onto desktop
- **Waving hands**: In chair, feet flat on floor, arms up at ears, start with waving hands, combine feet, add “ahhhh—“; leader says stop; hands down in lap or on desk *
- **Helper pushes**: In chair, feet flat on floor, friend goes behind, places hands on shoulders, pushes down and then releases, repeat 10 times, switch roles
- **String puppets**: Pull arm/leg up/out/across on one side simultaneously, then pull the other side up/out
• **Desk pinches**: “Pick up” small lint pieces, dust, popcorn, etc. off desktop—“move” from far right to far left, crossing midline along the way and then use opposite hand *

• **Pencil twirls**: Twirl pencil between fingers (like writing and then flipping to eraser side) *

• **Pencil walking**: Using tripod (thumb, pointer, & middle) pencil grasp, fingers walk up and down pencil shaft *

• **Spider push-ups**: Hands in palm to palm position, bend fingers pushing palms apart but keep finger tips touching (can also complete one hand at a time using table top surface) *

• **Finger Wiggle**: Keeping hands out the sides: wiggle fingers in isolation (e.g. thumb, pointer, middle, ring, pinkie) on both hands; then all together, then wiggle only right hand then only left hand, repeat *

• **Cold hands**: Rub palms together briskly *

• **Honey mess**: Push “honey” off arm (from shoulder to fingers) on right then left, repeat *

• **Hand-to-hand Pushing**: With a friend

• **Seat Walking**: Sitting on the floor with legs extended, life one side up, shift to next side while sliding body forward—hands crossed in front of body, on knees, or held out front

• **Foot-to-foot bicycling**: With a friend, seated on ground and using hands/elbows for support-10 times (can use wall for support if needed)

• **Wheelbarrow Walk** *

• **Crab walk**: Forward, backward, side-to-side *

• **Bear walk**: Walking on hands and feet (no knees) *

• **Frog Jump**
- **Gallop**: Right leg and left leg leads
- **Firefighter crawl**: Belly down on floor and propped up on forearms, pull self forward with arms only
- **Row-Row your Boat**: With friend, sit facing each other, on floor with feet touching and knees slightly bent, holding hands. Gently pull each other forward/backward in a rowing motion

*Indicates activities that may be especially relevant or appropriate in your classroom given the students ages, abilities, and space limitations*
Valuable Resources

Learn to Move, Move to Learn! Sensorimotor Early Childhood Activity Themes
By: Jenny Clark Brack

Learning through the Senses
By: Northern Territory Department of Health and Community Services

Brain Gym
www.brain.gym.org
Appendix K
Annotated Bibliography

Preparing for Kindergarten:
A Unique Home and Community-Based Occupational Therapy Approach

Rachel F. Lorenzo
Faculty Mentor: Melanie Criss, OTD, OTR/L
Site Mentor: Liza Gleckler, MOT, OT/L
Department of Rehabilitation Sciences
Occupational Therapy Doctorate Program
The University of Toledo
May 2012

Assessments

**Abstract:** There is no abstract available for this assessment tool.

**Summary and Significance:**

The *Bruininks-Osteretsky Test of Motor Proficiency, 2nd edition* (BOT-2, Bruininks & Bruininks, 2005) is one of the most common used motor proficiency tests in pediatrics. It is a comprehensive picture of motor development appropriate for use with children aged 4 years through 21 years. It is comprised of eight subtests: fine motor precision (e.g. cutting circle, connecting dots), fine motor integration (e.g. copying designs), manual dexterity (e.g. transferring objects, stringing beads), bilateral coordination (e.g. jumping jacks), balance (e.g. standing on one leg), running speed and agility (e.g. shuttle run), upper-limb coordination (e.g. throwing a ball at a target), and strength (e.g. push-ups). The subtests are further divided into categories of fine manual control (fine motor precision and fine motor integration), manual coordination (manual dexterity and upper-limb coordination), body coordination (bilateral coordination and balance), and strength and agility (running speed and agility and strength). An overall motor composite score is also gathered. It provides normative data as well as a picture of the child’s strengths and weaknesses. The tasks are fun for children and game-like thus increasing its appeal. Administration is done through a standardized protocol which is easy to implement. The use of an administration easel contributes to ease of administration as all information is presented on one page. It also provides pictures to help describe the task to the child.

This assessment tool was significant to my case study. The results allowed me to gain a baseline measure of the client’s fine and gross motor skills in various areas that impact motor
performance. Data gathered could also be compared to same-aged peers, which was important as the case study’s overall focus is easing the client’s transition to kindergarten. Through this information, I was able to analyze how deficits may impact specific daily activities of childhood that were the goals for intervention. In addition, conducting the assessment allowed me to build rapport with the client and learn various other things about him such as attention levels, visual perceptual skills, and cognition. If time and circumstances allow certain sections of this evaluation could be re-administered to provide quantitative outcome data.


**Abstract:** There is no abstract available for this textbook resource.

**Summary and Significance:**

This book is a resource for occupational therapists in a school-based setting who may be called upon to provide consultative services. The focus of the book is on the art and science of using collaborative consultation effectively to benefit children, teachers, and families in the school environment. Effective consultation requires skills that most therapists do not learn in an educational setting but find out they need once they start working. The goal of the text is to explain the process of collaborative consultation and show how it can be used effectively. When reading the text the authors want the reader to keep a few things in mind. It is important to remember when thinking about consultation that family members are an important part of the team; therefore team includes all involved parties. The stores in the text focus mainly on preschool and elementary children which is the majority of children school-based therapists serve; although information can be applied to any age group. The material in the book applies to all school based therapists and the term consulting therapists includes both physical therapists
and occupational therapists because the consultation process is relatively similar. Chapters in the book include topics such as working and consulting in the school system, educationally relevant consultation, analyzing student performance, identifying human resources, assessing the school environment, the therapist’s role, stages of consultation, supports for and challenges to consultation, conflict resolution, and reproducible forms.

This book was a valuable resource. While conducting my school-based observations and assessments, I utilized a form which aided my information gathering about student performance and the school environment. It allowed me to structure my thoughts. In addition, the book provided me with numerous helpful hints and tips for successful school consultation. This was important because providing consultative services in the school setting was a unique element of my case study intervention. Using this text as a guide, I was able to provide collaborative services that ultimately help promote success for the client, his teacher, and his classmates.


**Abstract:** There is no abstract available for this assessment tool.

**Summary and Significance:**

The *Pediatric Interest Profiles* are three age-appropriate profiles of play and leisure interest in children. The *Kid Play Profile* is used for children ages six to nine. The Pediatric Interests profiles are grounded in the principles of the model of human occupation. MOHO emphasizes that play is a fundamental occupation across the lifespan and the profiles consider the motivations of the child, which MOHO calls volition. These tools have been influenced by a “top-down” approach which is occupation-based and focuses initially on one’s level of participation. The *Kids Play Profile* is a self-report measure asking the child multiple questions
about play and leisure activities. The child answers up to three questions about 50 different activities. For each activity the child is asked, “Do you do this activity?,” “Do you like this activity?,” and “Who do you do this activity with?” The child can circle or color in a corresponding picture response. The profile is grouped into eight categories: sports, outside activities, summer activities, winter activities, indoor activities, creative activities, lessons/classes, and socializing. Methods for scoring are described and are fairly simple. Provided score sheets also for summarization, recording observations, and making recommendations for interventions based on the child’s responses.

This assessment tool was valuable to the case study process as it allowed me to gain a holistic view of the child including enjoyed activities and who he performs these activities with. This information guided the goal setting process. It is a client-centered tool that helped me, the child, and the parent collaborate on areas of interest relevant to the child’s already identified strengths and weaknesses. Understanding not only what activities the client likes, but who he engages in these activities with is important because it helps promote family centered intervention and may increase skill generalization across environments. In addition, I used this tool as a means for rapport building because the child enjoyed filling it out himself. It was something fun for us to do together and discuss.


Abstract: There is no abstract available for this assessment tool.

Summary and Significance:

The Child Occupational Self Assessment (COSA) is a client directed assessment tool and an outcome measure aimed at discovering a child’s perception of his or her competence at everyday
occupations. It is comprised of a series of statements related to everyday participation and uses familiar symbols and language. It provides the child the opportunity to express his or her views about individual strengths, concerns, and values regarding occupation. It is also an organized way to think about what activities a child would like to improve. It is designed to be used collaboratively with the child and parents if needed. The COSA is an assessment created for use with the model of human occupation and addresses occupational adaptation through analyzing occupational identity and occupational competence. Directions for administration are outlined to ensure child understanding and to promote ease of administration. The child is directed to rate answers based on how he or she performs on a daily basis. It is important for the child to understand to be honest and that everyone has their strengths and weaknesses. The assessment consists of 25 daily activities in which the child rates importance level (from “not really important” to “most important”) and performance level (“big problem” to “really good”). A discussion ensues after the assessment. The therapist and client can collaborate on goals, discuss rating, and establish priorities.

This assessment tool was important to the case study because it is a tool advocated for by the model of human occupation which was a primary model utilized during the study. It was an appropriate replacement tool for the Canadian Occupational Performance Measure (Law et al., 1998) as a measure of importance and competence at everyday occupations. Using this tool allowed for complete compatibility of the CO-OP approach and MOHO. Additionally, the assessment gave me an idea about what was important to the client and how he felt about performing various daily activities. It helped to ensure client-centered goal setting. It also gave me insight about how the client feels about himself and his abilities in important activities of
childhood. This is important because building self-esteem is an essential element of therapy. Finally, it can serve as an outcome measure if time and other circumstances allow.


**Abstract:** There is no abstract available for this assessment tool.

**Summary and Significance:**

The *Miller Function & Participation Scales* are standardized tools used to measure a child’s performance in functional tasks needed to successfully participate in classroom and school activities. These norm-referenced measures have an emphasis on motor skill abilities. The scales use the International Classification of Functioning, Disability, and Health as a guideline and address participation, activities, and body functions. The scales use fun, functional activities that appeal to children as a mean for examining a child’s fine, gross, and visual motor skills. Fun play based activities are utilized to assess gross motor skills as well as individual work books for school-related tasks. Observation checklists for home and classroom are also included with testing materials which are a simple way for the child’s teacher and parents to rate performance. The checklists use a 6-point rating scale ranging from “almost always successful” to “seldom successful” or “not seen.” Each check list is divided into sections and covers a wide variety of skill areas relevant in the home and classroom setting including movement, getting along with others, organizing, routines, behavior, activities of daily living, eating, and play skills. The tests can be used for all children and levels of impairment.

The home and classroom checklists were utilized during this case study. They served as an important tool for gathering data about the client’s overall skill and participation in the home and school environment. Both environments were important as occupational therapy services
were provided in both settings. The checklists allowed the client’s teacher and mother to highlight areas of concern related to transitioning to kindergarten as well as report on the child’s strengths and weaknesses. I also found the checklists useful as a guide for informal interview as I could ask the respondents for further details about certain responses and areas of need that were appropriate for service in the home and school settings.

**Cognitive Orientation to daily Occupational Performance (CO-OP)**


**Abstract:**

Over the past decade, cognitive approaches with children with developmental coordination disorder (DCD) have been investigated. Although studies have focused on intervention outcomes, few have documented the components of the approach that support the enhancement of children’s performance. This study used systematic observation of videotaped intervention sessions to identify the frequency and type of strategies that four children with DCD used during a cognitive intervention (CO-OP). The strategies used by younger and older children were compared, with differences found in verbal-based strategy use. Cognitive strategy use appears to be more related to the individual child and intervention goal than to age.

**Summary and Significance:**

The use of cognitive-based approaches to enhance occupational performance has been a growing area of interest in occupational therapy. Little evidence exists for the use of traditional “bottom-up” treatment approaches for skill enhancement. The objectives of the CO-OP approach are outlined in the introduction of the study as well as the relevance of global and domain
specific strategies advocated for through that model. At the time of this study no data had been discovered regarding the use of cognitive strategies with children with developmental coordination disorder less than 7 years of age. The goal of this study was to examine the type and frequency of cognitive strategies kids between the ages of 6 and 10 with DCD used while engaged in CO-OP. Results indicated that the children used a variety of strategies. All of the children spent the majority of their time in goal-directed activity, further supporting the use of CO-OP with younger children. Younger children in the study required more time to refine plans and improve task performance. Verbal strategies were commonly used amongst older and younger children; however it appears that strategies were more related to the child and the goal than age alone. Results also supported the collaborative nature of the CO-OP approach as therapist-child interaction was used frequently.

This research was significant because it helped validate the use of CO-OP with a younger age bracket of children. In addition, the strategies that were analyzed and how they were applied were useful for me to refer back to throughout my study for suggestions or tips. This study also emphasizes the client-centered nature of the CO-OP approach which is important to remember because although guidelines exist, I need to be adaptable in my intervention methods in order to find strategies that best suite my client. The descriptions of strategies provided in the article gave me clear examples of how I can utilize various different methods.


Abstract:
This pilot study compared a new treatment approach, the Cognitive Orientation to daily Occupational Performance (CO-OP) to the Contemporary Treatment Approach (CTA) to treating children with Developmental Coordination Disorder (DCD). CO-OP emphasizes problem-solving strategies and guided discovery of child and task specific strategies. CTA encompasses a variety of approaches, such as neuromuscular, multi-sensory, and biomechanical, focusing on motor aspects of skill acquisition. Twenty children with a mean age of 9.05 years (S.D.=1.23) participated in the study. All children had normal intelligence, scored below the 15<sup>th</sup> percentile on a standardized test of motor ability, and demonstrated motor difficulties significant enough to warrant referral for treatment. Pre- and post-test measures included the Canadian Occupational Performance Measure (COPM), the Vineland Adaptive Behavior Scales (VABS), the Bruininks-Oseretsky Test of Motor Proficiency (BOTMP), the Developmental Test of Visual-Motor Integration-Revised (VMI), the motor items of the Self-Perception Profile for Children (SPPC), and the Performance Quality Rating Scale (PQRS). In both groups, treatment goals were child-chosen. Both treatments lead to improved COPM self-ratings of performance and satisfaction; however improvements in the CO-OP group were greater than those in the CTA group. These results were paralleled by PQRS scores, and the Motor scores on the VABS, but not on the BOTMP measures. This outcome still needs replication as no control group was involved and because of the occurrence of pre-treatment differences between the CO-OP and CTA groups on relevant measures. Follow-up data indicated that children who received CO-OP tended to experience greater long-term maintenance of their motor goals and acquired strategies; follow-up parent report rated CO-OP treatment as more useful than CTA treatment. Self-report, observer report, standardized assessment, and follow-up all demonstrated the effectiveness of the CO-OP
approach, supporting the use of CO-OP and suggesting further investigation of this new cognitive intervention.

**Summary and Significance:**

Traditional treatment for children with developmental coordination disorder has been based on neuromaturational models of practice focusing on decreasing motor impairment. Contemporary models focus on task performance and view motor performance as the interaction of individual, environment, and variables of the task. Early evidence started to suggest that a cognitive-based approach called the Cognitive Orientation to daily Occupational Performance (CO-OP) might be successful in improving performance. The model focuses on strategy use during task performance. Miller, Polatajko, Missiuna, Mandich, and Macnab conducted a pilot study using a randomized clinical trial comparing the CO-OP approach to contemporary methods of treatment using components-based models for children with developmental coordination disorder (DCD). Twenty children with a mean age of 9 participated in the study. Improvements were made using both approaches; however improvements in the CO-OP group were greater. Follow-up data indicated children who took part in the CO-OP group maintained motor goals and acquired strategies for a longer amount of time and parents rated the CO-OP treatment as more successful. This study supports the use of CO-OP but the therapist must consider the nature of the approach and its verbal focus. It was noted that perhaps a playful nature of occupation provides encouragement and leads to success.

This study has implications for my case study because it validates the use of the CO-OP approach in occupational therapy intervention as children have experienced success using a problem solving based cognitive intervention. As the therapist, it is my responsibility to carry over principles of the approach into intervention, guide the child, provide encouragement,
provide opportunities, and involve the parents. In addition, the study suggests that the playful
nature of the approach may motivate the child indicating the need for me to incorporate
additional fun activities into treatment sessions to elicit the best response. It is also essential to
find the best individualized strategies for the client through guided discovery of the child, while
providing support as needed as a means for building self-esteem and increasing opportunities for
success.

Orientation to daily Occupational Performance (CO-OP) approach. Ottawa, Ontario:
CAOT Publications ACE.

Abstract: There is no abstract available for this book.

Summary and Significance:

In this book, a Cognitive Approach to daily Occupational Performance (CO-OP) was
introduced for use during intervention for children who have performance issues, specifically
mild motor impairments of learning difficulties. Intervention using a cognitive approach focuses
on identification of cognitive strategies that are effective in increasing motor skills. The therapist
adopts a performance-based assessment and utilizes guided discovery as compared to traditional
approaches. The book provides literature of cognitive and motor learning theories that underlie
the CO-OP approach. Case descriptions were used to help therapists learn how to apply the
model’s principles and experimental activities are suggested. The book is practical and helps the
reader acquire new skills to become more “top-down” in his or her clinical reasoning. The book
is designed to answer the what, why, and how questions. Chapter 1 answers the question of
“What is CO-OP?” and provides an overview of the approach. Chapter 2 addresses the
foundational concepts and theories in a concise overview of features that are essential to the
application of CO-OP. Chapter 3 provides detail about the specifics of the approach, objectives, and a step-by-step description of the seven key features of the model. Strategies for the therapist are introduced as well as the intervention format. Chapter 4 provides case scenarios and Chapter 5 provides information about CO-OP technology and resources. Chapter 6 is a self-guide to check the therapists understanding and level of comfort in using the model.

This book was provided to me by a faculty member and was the most valuable resource I acquired regarding the use of the CO-OP approach during my case study. It provided me with theory that supports the model as well as numerous other articles that I sought out that revealed crucial evidence-based support for its application with children similar to that of my case study client. The book outlined prerequisites, assessment procedures, key features, and intervention strategies; all of which I will directly apply while conducting my case study. I also found the clinical examples especially valuable as learning tools because I was able to consider the principles and see how they could be uniquely applied with a variety of children. I also utilized the CO-OP Toolkit CD ROM in the back of the book. The disc provided various useful tools including strategy handouts, decision trees, an outline of the model, DPA worksheets, checklists, and family resources. Overall, this book taught me how to apply the model in practice and tailor it to meet the individual needs of my case study client.


**Abstract:**

Occupational therapy is now consistently described as a profession concerned with enabling occupation. A crucial step in enabling occupation is first understanding the occupational
performance of our clients. Dynamic Performance Analysis (DPA) is a new approach to occupational analysis that focuses on the client’s actual performance. DPA, acknowledging that optimal performance is the product of the interaction of person, environment, and occupation, and thus highly individualistic, places the client and his or her occupation, in interaction with the environment, at the center of the analysis process. Embedded in a top–down framework, DPA is a dynamic, iterative process, carried out as the client performs the occupation. The purpose of DPA is to identify where performance breaks down and test out solutions. In this article, the rationale, origins, and basic assumptions of DPA are discussed, and a detailed description of the DPA process together with two clinical examples is presented.

**Summary and Significance:**

In order to help a client achieve his or her occupational goals one must examine teaching methods in relation to the specific needs and abilities of the client. In recent years occupational therapists have been called to focus on occupational performance embedded in a top-down approach. It has been suggested that assessments should be focused on direct observation of persons performing the occupation. The purpose of this article was to introduce Dynamic Performance Analysis (DPA), which is a new approach to occupational performance analysis that is performance-based. DPA is a dynamic process carried out as a patient performs occupation. Rationale for DPA is provided. DPA does not focus on underlying abilities and deficits but seeks to determine actual performance and observe client, task, and environment interaction. DPA evolved in connection with development of a cognitive approach to treatment of client’s with mild motor problems requiring a new approach to performance analysis. Observation of 40 children and 120 occupational goals led to the design of the DPA framework presented in this article. Basic assumptions of DPA include performer prerequisites and
performance requisites. Performance requisites are identified as the ability to achieve a balance between the ability of the person and supports and demands of the occupation and environment. Step one of the processes is establishing whole task prerequisites and step two is analysis of observed performance. Performance is viewed as nested with each unit of performance building on the next. Clinical examples of DPA application are provided in the article.

This article was crucial to my study as it provided the guidelines for using Dynamic Performance Analysis while using a cognitive approach to motor learning, which is the major focus of my case study. It clearly outlines its principles and how it should be used during assessment and throughout a treatment period. The case studies were particularly beneficial because they allowed me to see how to apply the concepts with a child and a specific goal. Points of breakdown during occupations were analyzed with potential solutions provided. These specific examples helped me to think in a new way regarding occupational performance and will prove useful. I will refer back to this article numerous times throughout my study to ensure I am using the DPA process correctly.


Abstract:

CO-OP is a child-centered, cognitive-based intervention focusing on enabling children to achieve their functional goals. It has been developed over the last nine years through a series of systematic studies that have specified the treatment protocol and evaluated its effect. Initially CO-OP was explored in two series of single case experimental studies. Subsequently, an informal follow-up study and a detailed analysis of the video-taped sessions of the approach...
were completed. Based on information from these studies, the approach was refined, key features elucidated and the protocol was specified. Next, a pilot randomized clinical trial was completed. The trial was conducted to determine how best to approach a full scale randomized clinical trial on the effectiveness of CO-OP, relative to the current therapeutic approach. Finally, a retrospective chart audit was carried out to examine the cumulative evidence on the effectiveness of CO-OP in improving the performance of children with DCD. This paper presents a detailed summary of these five studies and discusses the implications of the findings.

**Summary and Significance:**

Effective management of childhood conditions like developmental coordination disorder (DCD) is crucial as children are often reliant on a variety of health care and academic services. The approach to treatment of DCD was traditionally based on a reflex-hierarchical model. These approaches are being reexamined as they no longer seem adequate in their explanation of skill acquisition. Recent literature shows a strong connection between motor learning and control and the interaction of the task, person, and the environment. The purpose of this study was to provide a detailed summary of five studies regarding the effectiveness of the Cognitive Orientation to daily Occupational Performance (CO-OP) approach and its implications. Polatajko, Mandich, Miller, and Macnab presented these studies that evaluated basic tenants, development, and effectiveness of the CO-OP approach for treating children with developmental coordination disorder. In a case study, the potential of a learning model to guide skill acquisition in children with motor impairments was analyzed. Results indicated that strategy use could enable a child with DCD in motor task performance; indicating performance is more likely a learning issue and less likely a neurodevelopmental one. Three other studies addressed generalizability by demonstrating CO-OP was reproducible and effective for a wide variety of skills. Results also
indicated that CO-OP techniques were also effectively transferred to other skills. Together
studies presented in this review provide strong evidence that CO-OP is an effective approach for
children with DCD. Results also indicate the CO-OP approach is client-centered, satisfies
consumers, and actively involves the family.

This study was significant to my case study for various reasons. It validates use of the
CO-OP approach through evidence-based literature demonstrating its effectiveness in skill
acquisition. It is also relevant that evidence suggests CO-OP promotes generalization and
transfer of skills. This is important because, during my case study, intervention will be provided
in various settings, but with the overall goal being generalization of skills to other important
environments of childhood especially to school in order to ease the client’s transition to
kindergarten. The effect of using CO-OP strategies also appears to be generalizable to various
skills. It is my hope that the client and his family will be able to continue to use CO-OP
strategies for various other skills the client has difficulty with once my intervention with him is
completed. Through educational materials and cooperative treatment this study gives me reason
to believe that is possible.

Rodger, S., & Liu, S. (2008). Cognitive orientation to (daily) occupational performance:
Changes in strategy and session time use over the course of intervention. *OTJR: Occupation, Participation, and Health, 28, 168-179.*

Abstract:
Cognitive Orientation to (daily) Occupational Performance (CO-OP) is a cognitive intervention
that was developed to assist children with developmental coordination disorder (DCD) enhance
their motor performance in everyday activities. Using a computer-based analysis of 10
videotaped treatment sessions for each of four boys with DCD who were 6 to 9 years of age, this
study investigated changes in cognitive strategy use and session time use over the course of intervention. Cognitive strategy use focused on the child’s use of global and domain-specific strategies during intervention. Session time was referred to the duration of Talking About Task (describing the task or plans that will be executed), Practicing Task (actually doing the task or activity), and Dual Tasking (both talking and doing) coded during video segments observations. Trends in strategy and session time use over 10 sessions appeared to be child- and goal-specific, with few systematic patterns observed. This article discusses the use of specific strategies over time both within and across the four participants. Individual results were varied and highlight the unique child-task-environment interactions that occur during intervention, reinforcing the individualized and client-centered focus of the CO-OP.

Summary and Significance:

Cognitive Orientation to daily Occupational Performance (CO-OP) is a cognitive approach with the goal of improving motor performance, especially for children with developmental coordination disorder (DCD). Evidence supports the use of these “top-down” approaches focusing on task performance and problem solving. Guided by a therapist, children engage in active problem solving to discover, apply, evaluate, and monitor cognitive strategies. Numerous literature provides evidence of the effectiveness of the CO-OP approach. In order to use CO-OP effectively it is also important to understand how a session is organized and what components of a session are devoted to practicing a task and discussing strategies. This study set out to discover what global and domain specific strategies children used, what types of guidance is provided, and the dimensions of session time use. Four children participated in ten intervention sessions over five weeks and worked towards three goal areas. Results indicated that the only observable trend with regard to global strategy use was that GOAL was used minimally and more toward the
beginning of intervention. The DO strategy was used most frequently indicating that CO-OP focuses on selected task practice. How children spent session time appeared to be related to specific goals. Children spent most of their time in the DO phase. Verbal guidance was the most common approach used by the therapist, although it is important to remember that type of guidance is influenced by the child’s learning style, nature of the task, and the therapist. Finally with regard to domain specific strategies verbal rote script, body position, task specification/modification, and feel the movement were all utilized.

This study is relevant to my case study because it outlines what strategies may be useful when using the CO-OP approach with my case study client. In addition, it provided me with a description and explanation of how strategy use may change over the course of intervention. Upon reading this I can be better prepared to adjust to these changes accordingly. It also speaks to the importance of tailoring strategy use and facilitation methods to the client, task, and environmental demands. The article also reminds me to continually work with the client and his parents to check and analyze what is working and what may need refined. The article also emphasized the importance of active doing during the treatment sessions. While discussion and planning of tasks is important, it is also crucial for the child to get ample time to practice a skill in order to build confidence.

Developmental Coordination Disorder


Abstract:
Children with developmental coordination disorder (DCD) experience difficulty participating in the typical activities of childhood and are known to have a more sedentary pattern of activities than peers. Little research has been done to investigate the impact of these deficits on the lives of children with DCD and their importance of their participation in the typical activities of childhood. This qualitative study explored the impact of the disorder and the importance of participation for children with DCD from the perspective of the parent. Twelve in-depth interviews were conducted with parents of children with DCD who attended a university clinic specializing in using the Cognitive Orientation to daily Occupational Performance (CO-OP) approach, a cognitive-based intervention. Finding revealed that incompetence in everyday activities had serious negative effects for the children. Conversely, intervention that was focused on enablement at the activity and participation level had a significant positive impact on the children’s quality of life. Emerging themes highlighted the notion that performance competency played an important role in being accepted by peers and being able “to be part of the group.” As well, parents reported that successful participation built confidence in their children and allowed them to try other new activities. The World Health Organization’s International Classification of Functioning, Disability, and Health provides a unique framework for analyzing and understanding the impact of physical disability on the lives of families with children with DCD. Results illustrate how intervention that focuses on enabling children to choose their own functional goals in the area of physical activity has important implications for enabling participation and building the social networks of children with DCD.

**Summary and Significance:**

Participation in everyday occupations of childhood is an important part of childhood development. Research suggests that participation in everyday activities promotes health, self-
esteem, and social adjustment. Children with motor impairments are often restricted in the activities they can participate in. Children with developmental coordination disorder (DCD) have motor impairments that impact academic and activities of daily living; these children represent a large proportion of school-aged children. Recent literature suggests that the management of DCD should include a focus on enabling children at the participation and activity level to promote maximum participation. This study explored that idea in order to gain an understanding of the impact on performance and competencies on the lives of children with DCD. A qualitative approach using interviews with parents was used for the study. Results confirmed the restrictions that children with DCD face. Parents recounted stories of failure and success. Self-efficacy was a major theme that emerged as parents reported their children gained confidence as they mastered their goals and they were more willing to try new activities. The study suggested that focusing on child-chosen goals and everyday activities achieved more skill acquisition.

This study is very relevant because understanding the impact of disease in the people we treat from a holistic perspective is important in occupational therapy. With regard to my case study, this research emphasized the importance of choosing child-relevant goals in order to promote success and participation. Providing additional opportunities for my case study client to feel successful in activities he wants to participate in will also be crucial as a means for self-esteem and confidence building. Activity analysis for children with DCD is focused at the activity level which coincides with my case study as it employs the CO-OP approach which is performance-based.


Abstract: There is no abstract available for this online resource.

Summary and Significance:

Medline Plus is a service of the U.S. National Library of Medicine and the National Institutes of Health. One is able to easily search a wide variety of health related topics and independently search for specific areas of personal interest. Upon searching developmental coordination disorder a summary of the condition is provided including causes, symptoms, exams, treatment, outlook, possible complications, prevention, and future references. According to this reference about 6% of school-aged children have some type of developmental coordination disorder. Children with this condition have difficulties with motor coordination compared to same aged peers including developmental delays and gross and fine motor coordination. Examples of skills a child with this condition may struggle with are provided. Treatment may include various therapies and encouragement of physical activity is crucial. Possible complications include learning disabilities, low self-esteem, weight gain, and repeated injuries.

This reference was significant to my case study as it allowed me to gain a clearer picture of what symptoms a child with developmental coordination disorder may present with and connect those impairments to my case study client. It also provided useful statistical data and other relevant information as described above that was useful in the production of the introduction of my case study.


Abstract: There is no abstract available for this text book chapter.
Summary and Significance:

This chapter is included in one of the main resources in pediatric occupational therapy. The chapter provides information about some of the major medical conditions, diseases, and disabilities of children that occupational therapists commonly work with. The chapter is organized according to a body systems format as it is the most simple and useful for reference purposes. Main sections include cardiopulmonary dysfunctions, musculoskeletal disorders, neuromuscular disorders, and developmental disabilities. The chapter also provides sections on traumatic brain injury, neurodevelopmental disorders, burn injury, toxic agents, and pervasive developmental disorders. Incidence rates and prevalence, signs and symptoms, causes, pathologic abnormalities, medical treatment, and prognosis of a wide variety of conditions are described. Functional performance issues commonly occurring with each diagnosis are outlined as well as relevant occupational therapy treatment related topics. The end of the chapter touches on other general developmental concerns that therapists must be aware of such as pediatric obesity, suicide, and depression.

The major section of interest with regard to my case study was the developmental disabilities section. Valuable information about developmental coordination disorder and learning disabilities was provided. The client that is the focus of my case study has a rehabilitation diagnosis of developmental coordination disorder and many of the characteristics described that commonly occur in children with this condition are reflected. Other relevant psychosocial concerns related to the condition were discussed including participation avoidance or low self-esteem. It is important for me to recognize these potential areas of concern and respond accordingly during my study. Basic guidelines and suggestions for intervention were also provided which I will take into account. These include individualized treatment with a focus
on school-related tasks such as handwriting or physical activities. Information was also provided about learning disabilities. The case study client of interest also has been recently diagnosed with a non-verbal learning disability. The text helped me learn more about the features of learning disabilities, how my client may process information, specifics areas of need, and how my client may respond to intervention. Various treatment strategies were also suggested, some of which will be utilized during my study such as improving self-help skills and parent education.

**Home-Based Occupational Therapy**


**Abstract:**

This article discusses the challenges and implications for pediatric practice in the home. Pediatric occupational therapists are moving the treatment setting from the clinic to the home. Working within the home environment requires occupational therapists to adapt their roles, functions, and treatment styles. Intervention frequently involves practical and relevant treatment, using activities and objects from the child's world. Thus, functional goals may be more realistically achieved in the child's living environment. Involvement with family members also offers opportunities to develop collaborative relationships with parents and, therefore, to integrate the intervention program into the child's home life.

**Summary and Significance:**

Occupational therapists possess the skill set to not only conduct intervention in the clinic, but in the home as well. As this area of practice grows, issues specifically related to conducting pediatric therapy inside the home should be addressed. This study set out to examine these issues. Research cited in the literature review suggests that the home environment is a critical
variable in the effectiveness of intervention during early childhood. Advantages of home-based occupational therapy are highlighted in the literature review including the parent and child being more at ease and practical environmental problem solving. When conducting home-based therapy correlation between agency and family goals was also important in determining service delivery. In addition, home services also help a parent cope with their child’s disability. The paper outlines various issues that must be considered while working with a child in his/her home including the therapist’s role, involvement with the family, specific challenges within the home environment, and values and sociocultural issues. Changing from the clinic to the home requires the therapist to adapt methods to meet the demands of the home environment. When working in the home, the therapist must take care to maintain a professional relationship as well as deal with family difficulties that may impact treatment. Challenges in the home environment differ greatly than those in the clinic. In the home, the therapist may have less control, supplies, equipment, and limited space and flexibility. Finally, while working in the home the therapist has the opportunity to see how family values, culture, and personalities impact the child inside the home. All of these issues must be carefully considered when inside the home. As a therapist, one should remember that the challenges of finding creative solutions to help a child develop is exciting and relationships developed through home-based care can be very rewarding.

This article is directly connected to my case study on a variety of levels. A crucial component of my pediatric case study will be getting outside of the clinic and providing home-based interventions. This article highlighted some important areas of consideration and provided simple strategies and solutions that will likely prove useful. It brought new topics to my attention, such as role adjustment, economic considerations, intervention limitations, and new environmental challenges. All of these areas must be carefully considered while I expand my
intervention methods into the home. Means for facilitation of productive conversation between therapist and parents are discussed that may prove useful to me. In addition, topic areas for conversations that I should incorporate into my treatment are provided such as parent anxiety, concerns, and community resources. The article also provides support the importance of family-centered goal setting inside the home, which I will strive to do. Finally, the article provided some limitations of home treatment. These limitations are important to recognize because they support the provision of occupational therapy inside the treatment clinic in conjunction with home interventions while completing my case study.

**Home Exercise Program**


Abstract: There is no abstract available for this resource.

Summary and Significance:

This book is designed for professionals who are seeking to help children reach their full potential. Therapists and professionals are given effective therapeutic activities and materials for parent education in an easy to use resource which provides clear pictures, detailed descriptions, and a CD ROM which provides additional information. The activities provided in the book are easily implemented and are designed for children of all ages with diverse sensory processing and motor control issues. Music can also be utilized to promote rhythmicity and coordinated movements. Selection of activities is based on skilled therapeutic knowledge, fitness-related principles, and sound clinical reasoning. Emphasis of the exercises is on activation of core muscles to achieve deep respiration and increase core strength and endurance. The goal of the presented activities is to develop the deep muscles, especially those providing support to the head, neck, and trunk. Proper breathing during the exercises is also emphasized to coordinate
breathing with movement and for effortless postural control and breath support. The authors believe that when the body moves with ease and fluidity, a child can creatively and independently carry out complex reasoning and movement required for communication, planning, organizing, and executing important life tasks and roles of childhood.

This resource was highly valuable to my case study as the client presented with low muscle tone and strength in his core and both his lower and upper extremities. Therapeutic exercises aimed at increasing core strength and stability can ultimately improve extremity strength and function. With specific relevance to the case study client, stability of the shoulder girdle promotes increased upper extremity support and hand strength and dexterity required for fine motor tasks expected at the kindergarten level especially precise fine motor coordination skills, visual-motor integration tasks, and handwriting. The activities are fun and age-appropriate for the client. These exercises were utilized during intervention and were compiled as part of an educational hand-out to provide to the client’s family in order to encourage carry over at home upon completion of the case study.

**Model of Human Occupation**


**Abstract:** There is no abstract available for this text book resource.

**Summary and Significance:**

This book supports the idea that occupation is the central idea and foundation in occupational therapy and should remain as such in order for the profession to grow. The book was influenced by concern that the field needed to develop a science of occupation without forgetting the therapeutic elements. This edition of the text represents a balance between the
field’s commitment to occupational and everyday work of practitioners. The theme of the book is that conceptual foundations must guide practice. The first section of the book provides an overview of occupational therapy’s conceptual foundations including history, conceptual understanding, and the evolution of practice back to occupation. In section two, various commonly used conceptual models are given a chapter of text which outlines theory, evaluation, principles of the model, intervention, and other relevant issues related to use of the model in practice. Models included are biomechanical, cognitive, functional group, intentional relationship, model of human occupation, motor control, and sensory integration. The third section provides related knowledge while section four aims to provide the therapist with reasoning and methods to use the conceptual models of practice in a way that represents best practice and promotes occupational therapy.

This book was a crucial element of my case study. It provided me with a clear understanding of the value of using conceptual models in practice especially for projects such as case studies. It also highlighted the value of using occupation both as a means and an end during my case study as this represents the core values of occupational therapy throughout history. The chapter on the model of human occupation was also very important as it provided further information about using MOHO in practice. This was crucial because MOHO was a primary model utilized during my case study. It gave me information about potential assessments. In addition the therapeutic strategies and ways of implementing and monitoring therapy outlined in the text will prove useful during my study.


**Abstract:**
This paper, the first of four, presents the structure and content of a model of occupation. The model is proposed as the first step in the development of a paradigm of occupation for the field of occupational therapy and is designed for application in practice and research. It draws upon the theory of open systems to build a structural framework. Concepts relevant to human occupation are integrated into this framework. Subsequent papers will add concepts to the model and demonstrate its application in clinical practice.

**Summary and Significance:**

A model is a tool used to organize, simplify, and categorize phenomena, thus increasing understanding. The model of human occupation presented in this paper was designed to provide occupational therapists with a conceptual tool to practically organize theory, practice, and research. Concepts of occupation are organized into a framework based on general systems theory. The organizing framework specifies the dynamics of the whole and the relationships of the parts. According to this model the internal parts of the system representing occupation are organized into three hierarchical subsystems: the volition subsystem, the habituation subsystem, and the performance subsystem. The volition subsystem consists of motivational structures. Habituation organizes behavior into patterns while the performance subsystem consists of capacities and skills of the individual. Dynamic interaction of the person and his or her environment is highly regarded throughout the model. Further descriptive content is also described in the model including motivational-symbolic components of personal causation, goals, and interests. Habituation is organized into routines, occupational patterns, and roles. Rules that govern skilled action are considered in the performance subsystem. According to this model, the output of information and action to achieve purpose is occupational behavior. The
occupational self is transformed through input, output, and feedback one receives from his or her environment.

This model is significant to the present case study as the model of human occupation is one of the primary models employed to guide intervention. Principles of the model are utilized throughout evaluation, goal making, and intervention. The client and his family are active parts of the process in order to promote purposeful occupation and positive changes. Additionally, roles and routines of the client are carefully considered. These include the client’s role as a student, son, and friend and his routines at home and in the school environment. The dynamic interaction between the task, the person, and the environment are addressed through tailoring occupations to provide the “just right” challenge to the client as well as providing various modes of intervention in numerous environments including the clinic, home, and the community.


Abstract:

OBJECTIVE. This study describes how occupational therapists who reported using the Model of Human Occupation (MOHO) actually use the concepts and tools of this model in everyday practice as well as identifies supports and barriers to its use.

METHOD. A systematic random sample of 1,000 occupational therapists was surveyed as to what theories they used in their practice. Those using MOHO (430) were sent a detailed questionnaire; 259 therapists (60.2%) responded to the survey questionnaire.

RESULTS. More than 80% of respondents indicated that they used MOHO in their practice at least some of the time. Therapists reported that MOHO supports holistic, occupation-focused,
client-centered, and evidence-based practice. They reported finding MOHO concepts useful for treatment planning and intervention. Most saw the major barrier to using MOHO as their own lack of knowledge.

CONCLUSION. Making resources more readily available and accessible to therapists might enhance the extent to which they use conceptual models such as MOHO.

Summary and Significance:

Occupational therapy focuses beyond the reduction of impairment to help individuals realize meaningful participation in life occupations. Although therapists agree that occupation should be the center of the field and its practice; occupation-focused practice has not been completely embraced. Over the past several decades various models have been outlined to promote occupation-centered practice. Although the model of human occupation is widely used, little is known about how practitioners choose and actually use the model. In a review of the literature knowledge of theory, factors influencing values and knowledge concerning theory, factors influencing theory use, and how theory is used were reviewed. This study set out to get a better understanding of how therapists choose, think about, and implement theory in practice. The purpose was to describe how therapists perceive and use the model of human occupation. A survey was sent to 1,000 randomly selected occupational therapists. From the respondents 80% indicated they used MOHO principles at least some of the time. Results did not suggest a difference in the use and understanding of MOHO across practice settings. Practitioners felt they had a good general understanding of its concepts and found them useful in practice. Therapists had the least understanding with regard to environmental concepts and made limited use of MOHO assessment tools. Continued development of the model and knowledge expansion in practice will facilitate improved understanding and application.
This study is relevant to my case study because it helps validate the model’s use and application in my study. Survey respondents reported the model was useful in practice and that its ideas and concepts were relevant in a variety of practice settings. Therapists reported applying similar concepts into practice that I also applied to my case study such as volition and habituation. These considerations which aide the therapist in looking beyond impairments and at the client’s perspective and lifestyle are crucial in my client-centered project. Concern with life roles was also reported as important and is also valued in my case study as the client’s life roles in various environments of childhood will be explored.

Motor Learning and Motor Skill Development


Abstract: There is no abstract available for this text book chapter.

Summary and Significance:

This chapter is included in one of the most popular textbook resources in occupational therapy. This chapter provides an overview of the OT Task-Oriented Approach to optimizing motor behavior. Recent literature in motor behavior provides a strong theoretical base for using purposeful and meaningful tasks as the primary treatment modality. The task-oriented approach suggests that the client has an active involvement in treatment. The ideas outlined in the chapter adopt a client-centered treatment approach in which the client is an active participant. The occupation-based focus for intervention planning is essential to ensure that tasks are functional in nature and are meaningful and important to the client’s roles. In order to apply the model the
therapist must analyze the characteristics of the tasks selected for treatment, describe and determine appropriateness of movement patterns, and analyze functional outcomes. The interventions used in the task-oriented approach also address personal and environmental systems to promote participation and successful occupational engagement.

This chapter provides a theoretical and practical backbone for task-oriented motor interventions included throughout the case study. These methods will be provided as adjuncts to the other primary models used during the study. During intervention sessions treatment principles of the task-oriented approach will be utilized such as selection of tasks that are meaningful to the child and occupation-based in nature. The characteristics of an active-learning environment will also be harnessed in order to promote optimal learning and to encourage skill acquisition. The client and his parents are also a major part of the establishment of goals promoting meaningful and purposeful occupations.


Abstract: There is no abstract available for this textbook chapter.

Summary and Significance:

This chapter is part of one of the main textbook resources in pediatric occupational therapy. The development of hand skills is crucial to occupational performance and environmental interaction throughout the life span. Hands allow us to work, play, and perform activities of daily living. For children with disabilities that affect hand skills, they have less opportunity to explore their world. The chapter includes various sections including components of hand skills such as reach, grasp, in-hand manipulation, and bilateral hand use. Other sections
are contributions of body functions to hand skills, general developmental considerations, development of hand skills, relationship of hand skills to occupations, evaluation, and intervention. The intervention section is especially well laid out with specific problem areas outlined and corresponding intervention techniques for children with various levels of disabilities or skill levels. Basic pediatric splinting principles are also introduced with pictures provided.

This chapter is significant to my case study due to the client’s fine motor delays. While other models of practice will provide the primary framework used during intervention to address various other skills, fine motor skills will also be addressed as an adjunct through play, school-based consultation, and other functional occupations. This chapter helps justify these therapeutic methods. The activities and suggestions provided in the chapter for enhancing grasp, in-hand manipulation, bilateral hand use, and muscle strength are appropriate for use with this client and may be utilized during this case study.

Non-Verbal Learning Disabilities


http://www.nichd.nih.gov/health/topics/learning_disabilities.cfm

**Abstract:** There is no abstract available for this online resource.

**Summary and Significance:**

The Eunice Kennedy Shriver National Institute of Child Health & Human Development is a service of the National Institutes of Health. This particular webpage was discovered by searching learning disabilities through an A-Z index of health and human development topics. Learning disabilities are covered in depth including what learning disabilities are, signs and symptoms, types of learning disabilities and treatments. The unique etiology of learning
disabilities, their impact, and how they can be diagnosed is discussed. Signs of learning disabilities are suggested such as delays in certain developmental milestones. Types of learning disabilities are listed including reading, dyscalculia, dysgraphia, information-processing, and language-related learning disabilities. Basic information about each type is also provided. The reference emphasizes that while there is no cure for learning disabilities early screening and intervention from specialists can be very beneficial and create positive long term results. Specifics related to obtaining school-related services for a child with a learning disability is included as a resource for parents and caregivers.

This reference was significant to my case study as it allowed me to gain a clearer picture of what symptoms a child with a learning disability may present with and connect those impairments to my case study client. It also provided other relevant information as described above that was useful in the production of the introduction of my case study. As a clinician it is important to understand how our clients learn and process information in order to provide individualized treatment and tailor our methods to best elicit successful performance. This resource added to my knowledge about learning disabilities and will help me provide better treatment specialized to meet the needs of my client including altering environmental conditions and modification of verbal and visual strategies to that promote learning and acquisition of various skills.


Abstract: There is no abstract available for this article.

Summary and Significance:
Sue Thompson holds a master’s degree in Special Education from St. Mary’s College of California and has been a teacher for 25 years. She also wrote a book about nonverbal learning disorders. This particular article thoroughly covers non-verbal learning disorders. In the introduction the important role that language plays in learning is discussed. Non-verbal learning disorders, which are also called “right-hemisphere learning disorders,” often go undiagnosed due to lack of awareness. In addition, the child tends to be very verbal and often has an average or above average IQ and early vocabulary development which helps him or her succeed in school during the early years. Brain scans of those with non-verbal learning disorders reveal mild abnormalities of the right cerebral hemisphere. Only 1-10% of those individuals with a learning disability are found to have a non-verbal form. The history of non-verbal learning disorders is also provided. Issues related to identifying nonverbal learning disorders are described. Three categories of dysfunction that children with this condition present with are provided and are crucial to be aware of. These include: motoric (lack of coordination), visual-spatial-organizational (faulty spatial perceptions, poor visual recall, etc.), and social (lack of ability to comprehend nonverbal communication). A section of the article is also devoted to servicing a child with a non-verbal learning disorder which is comprised of the diagnostic process, special education and school-based services, education, and other therapeutic options. Thompson suggests various compensations, modifications, and strategies that can be utilized to promote learning and success in various environments of childhood.

This article had various areas of significance with regard to my case study. It greatly enhanced my personal and clinically related knowledge about a particular diagnosis that I did not previously know much about. The background information was an essential element in my case study manuscript in order to provide a clearer picture of my client as he displays many of the
common characteristics associated with the disorder. It is important for me to understand how my case study client will process information and respond to treatment strategies so that I can adjust methods accordingly, try new methods, and dismiss those that are ineffective. The article provided strategies that are directly applicable and appropriate for use with the models of practice I am utilizing. Relevant compensations, modifications, and strategies include verbal strategy use, accommodations and modifications for school-related tasks (especially fine motor), plain and clear expectations, well-established routines, and verbal teaching. In addition, the article served as a great resource for the client’s parents, other clinicians, and care providers as a reference and to provide insight regarding the client and potentially useful techniques to promote success in various environments.

**Person-Environment Interaction**


Abstract:

There is no abstract available for this position paper.

**Summary and Significance:**

The American Occupational Therapy Association (AOTA) has detailed a position regarding occupational therapists and their ability to select, use, and create environments and contexts that support health and participation through desired occupations. Occupational therapists engage in a collaborative process with the client in order to determine relevant contextual and personal factors such as age, diagnosis, and caregiver support, all of which will be important to consider when working closely with the pediatric client of choice for my case study.
Suggestions are provided to address dilemmas related to what type of environment and context are most beneficial to elicit client performance such as structured and natural context, learning and feedback provided by the therapist, and promoting safety.

The paper provides useful case study examples of environmental considerations, occupational therapy interventions addressing environments and contexts, and research supporting practice for various types of clients that may prove relevant for my case study. Finally, the paper addresses various concerns that I will likely encounter during my case study such as financial issues, organizational concerns, and complex client conditions and how they are impacted by various environments and contexts.


Abstract:

There is no abstract available for this chapter.

Summary and Significance:

This important chapter is in one of the most widely known texts in occupational therapy and emphasizes the importance of the environment in practice. Three dynamic models are described. In all three models occupational performance is the primary outcome and is determined by the person, environment, and occupation, with the environment being the most significant. Evaluations and interventions using these models are designed with a focus on the environment. Of primary interest for my pediatric case study is the Person Environment Occupation model as it is currently being used in practice at the site and will also be used as a basic framework for conducting my case study.
The description of this framework and its application have various implications for my pediatric case study. The model incorporates a lifespan approach, recognizing that occupational patterns change through natural human development, therefore its use with children is warranted. Past, present, and future occupations are connected throughout life and are a valuable components of intervention. When using this model with a child, interview, observation, and caregiver involvement will be essential in order to gain information about the occupational history, current occupations, and future occupational desires of the child. The environment includes physical, social, and cultural aspects, all of which have equal importance. Occupational performance is viewed as something sustainable over a period of time; therefore, using this framework; interventions with my pediatric client of choice will be aimed at adaptations useable in various environments throughout his or her life. Interventions and therapeutic strategies should elicit meaning and purpose for the individual and preserve, modify, or adapt the environment as needed in order to best support adaptation and success. Environmental modifications are of utmost importance when working with children with developmental disabilities.


Abstract:

OBJECTIVE. The purpose of this study was to describe the occupational concerns and goals of mothers who care for children with disabilities.

METHOD. Retrospective data collected from 38 mothers of children with disabilities using the Canadian Occupational Performance Measure (COPM) were analyzed qualitatively.
RESULTS. Six themes emerged: (I) doing and being alone: taking care of my own health and well-being; (II) doing and being with others: expanding my social life; (III) improving my child’s quality of life; (IV) household management: organizing time and resources; (V) balancing work, home, and community responsibilities; and (VI) sharing the workload.

CONCLUSION. Overarching patterns in the data suggested that the occupational performance of mothers of children with disabilities is constrained by time, overlaid by difficult emotions, and involves a desire for increased social contact. Qualitative analysis of data from the COPM may provide insight into contextual factors that affect occupational performance as well as signaling point of entry for therapists to facilitate client-centered occupational goals.

Summary and Significance:

Mothering is a time-intensive occupation requiring high levels of energy. It also is an important social role. Occupational therapy recognizes the psychosocial aspects of wellness and the value of relationships in one’s life. A mother’s work becomes even more demanding when caring for a child with a disability. As a result of caregiving demands, mothers often do not engage in other occupations of choice. This is important because occupational imbalance may ultimately lead to decreased well-being and life satisfaction. This study sought to seek out occupational goals and concerns of mothers in an effort to promote not only the health of mothers, but their children as well. Conducting the Canadian Occupational Performance Measure with each participating mother revealed six themes describing the meaning associated with caring for a child with a disability. Occupational goal themes included; doing and being alone, doing and being with others, improving my child’s quality of life, household management, balancing work, home, and community responsibilities, and sharing the workload. Time, social contact, and dealing with emotions also emerged as highly important to mothers.
This study has various implications for my future pediatric case study. Although the study participants were mothers, the information gathered may also have application for fathers and caregivers. While conducting my case study, I intend to be highly involved in his or her family life, including frequent contact with caregivers. The study supports the role that occupational therapy intervention has for not only the child, but the parent as well. An effective therapist must be able to empathize with parents. In addition, the study also provided feedback from parents regarding their value and appreciation for therapists who seek out the spirit of their child beyond the disability, provide social support, and touch their children. These are all qualities that I will strive to achieve while conducting my study. The study also highlights the value of using client-centered interview tools such as the COPM in order to increase equality in therapeutic relationships, gain subjective insight, set occupational goals, and build understanding.


Abstract:
Describing development as sequential sensorimotor, cognitive, and psychosocial milestones does not explain how children learn to do or improve their occupations. In response to changes within occupational therapy and challenges in early intervention, this article focuses on development of occupation and proposes a dynamic system perspective. Contemporary research suggests that processes are in place to ensure that children develop as occupational beings. Social participation and caregiving routines guide the child toward becoming occupational by introducing intentional acts and by endowing experiences with meaning. A self-organizing process enables children to integrate their immature capacities and engage in occupations. Simultaneously, caregiving
shapes these emerging behaviors, ensuring that performance is culturally compatible. Finally, using self-organization to maintain occupational engagement enables the child to accommodate to maturing abilities and environmental challenges. This reorganized pattern in turn is the basis for developmental changes, new behaviors, and refinement of current abilities. Application of concepts is made to acquisition of skills for eating a meal.

**Summary and Significance:**

Occupational therapy takes the unique stance that occupation is both the process and the outcome of healthy development. With this said, further clarity is needed to adequately describe how occupational therapy views occupational development. A major part of this includes evidence regarding which group of children under what conditions benefit from services. To respond to these needs, this article examines assumptions in pediatric practice and provides a conceptual model of dynamic processes outlining children’s development as occupational beings. The model that the article proposes addresses change through occupation. Occupation is defined here as culturally valued, coherent patterns of action that emerge through interaction with the child and the environment out of desired or expected activities. A dynamic systems approach is used to explain patterns of organization and how change occurs. Here a dynamic systems approach is combined with research to suggest a conceptual model regarding developmental processes in childhood. Four issues are considered and described in detail in the article. These issues include intention, production of occupational behaviors, sociocultural aspects, and production of new behaviors, performances, and skills.

This article has various implications for my pediatric case study. It is crucial that it highlights the value of cultural considerations in intervention including child directed intentional acts, activities tolerated in select groups, and the importance of caregiver interactions in
occupations. These factors will all need to be thoughtfully considered when I conduct my case study. The therapist can help discover what the best therapeutic medium is and in what setting it will promote optimal development. The model is consistent with a client and family-centered approach, which is my ultimate aim when conducting my case study. Additionally, the articles focus on occupational engagement as a means for change and the value of occupation during childhood supports the use of specific occupation-based models of practice including child chosen goals applied during my study.


**Abstract:**

Understanding the individual meaning of daily activities for children with developmental disabilities such as autism is both important and challenging for researchers and practitioners. Rigorous participant observation offers a method for developing this knowledge base by including the child’s perspective. Through literature and examples from an ethnography of young children with autism, this article illustrates the application of participant observation to children with developmental disabilities. Specific strategies can promote valid interpretations despite developmental, linguistic, and perceptual differences between adult researchers and child participants.

**Summary and Significance:**

This article delves into a participant-observer approach to research as a means to study occupation from a child’s perspective. Understanding subjective experiences is a crucial part of understanding occupation, without this perspective meaning can be lost or misunderstood.
Participant observation can help one gain this perspective. In order to analyze occupations of children with developmental disabilities, an action based approach rather than a linguistic approach is recommended. While the continuum for participant observation, which is a qualitative research method, ranges from full participation to quiet observation, active participation with a child helps develop rapport and an alternate means of gathering information. Detailed exploration of the differences between children and adults that limit research validity and reliability are provided including the developmental gap, the language gap, the perceptual gap. Strategies are provided for bridging these gaps.

While this study is aimed at analyzing research methodology, it does have various clinical implications. First and foremost, using action rather than words in order to assess and intervene with a child with a developmental condition will be a useful strategy. The study also provides a useful chart outlining the differences between adult researchers and children with developmental disorders along with strategies to facilitate interpretation of the child’s occupations. These strategies may prove useful to me in the clinic in order to better interpret and understand the child’s meaning and perspective of occupation and development as an occupational being. Potentially useful strategies provided include passive obedience, imitating actions, and attuning senses. Narrowing the gaps between me and the child I am working with may help increase the validity of my evaluation and assessment through the case study process.

**Play in Occupational Therapy**


*American Journal of Occupational Therapy, 62, 467-468.*

**Abstract:**

There is no abstract available for this statement.
Summary and Significance:

The American Occupational Therapy Association (AOTA) asserts that all children have a right to play as it serves as a context for development. Play is fundamental for growth and learning from infancy through adolescence as it contributes to physical, social, cognitive, and emotional development. The right of every child to play is challenged by various factors such as changing family structures and community factors. In addition, time and space for play is reduced as a result of circumstances such as lifestyles that rush children into adult roles, academic preparation, sports, organized activities, expansion of media, elimination of recess, and unsafe play environments. The absence of childhood play or reduced opportunities for it deprives children of an essential component for maximum growth and development. AOTA appreciates that play is a domain of occupational therapy practice throughout the lifespan. The occupational therapist should defend a child’s right to play as an individual and as part of peer groups and in the community by promoting the role of play to health and well-being. Children need a variety of skills to engage in play and occupational therapy can help one create and restore these needed skills.

This statement is important as it provides support from AOTA about the unique and crucial role that play holds in intervention for children with a variety of physical, cognitive, social, and emotional impairments. Play is not only a means for therapeutic intervention but may also be a successful end. Referring to this statement advocates for play and its relationship to health throughout a child’s life. Play also holds a significant role in successful performance of other occupations of a child’s life such as school work, occupations of daily living, social engagement, and extra-curricular activities; therefore it is warranted as an important part of my
pediatric case study and intervention. It can be utilized as a teaching and educational tool for caregivers and fellow clinicians throughout my case study.


**Abstract:**

We examined the impact of an intervention on the playfulness of 5- to 7-year-old children who are developing typically. Materials that had no defined purpose were placed on a school playground for 11 weeks. The Test of Playfulness (ToP) was used to compare videotaped play segments pre- and postintervention. Teachers who did playground duty were interviewed regarding changes in play. ToP data were analyzed using a Wilcoxon signed-ranks test. Interview data were analyzed for themes. ToP scores were significantly higher after intervention ($Z = -1.94; p = .025$, one-tailed; Cohen’s $d = 0.55$). Teachers reported that children were more social, creative, and resilient when the materials were on the playground. Children who were creative, rather than very physically capable, became leaders in activity. Our results revealed a potential role for occupational therapists with typically developing children in schools. This finding has clear implications for children with disability.

**Summary and Significance:**

It has been established that play contributes to childhood development on many levels including physical, social, cognitive, and emotional. However it is unknown what play experiences contribute most and what makes them valuable. The Test of Playfulness (ToP) has been shown to be a valid and reliable measure of how a child plays, further confirming the value
of play as a valuable intervention in occupational therapy. This study explored playfulness in a group of children ages 5-7 who were typically developing after new materials were introduced on the school playground. ToP scores and teacher’s perceptions of playfulness were examined after the intervention. The intervention consisted of the introduction of loose materials to the playground. Materials added were items usually not associated with childhood play. Children could also assess a bag of various balls and other play equipment such as jump ropes. The children were videotaped during play before the playground was changed and following the intervention. Teachers were also interviewed. Teacher’s agreed that children were more creative, active, and social in their play habits following the intervention. Playfulness in the children generally increased as well.

This study provides evidence based support that play can be altered as a result of intervention. This has valuable implications for my case study because the study employed cost-effective, relatively simple mechanisms for change that could be easily replicated in the clinic, home, or at school. Although my case study will be conducted through an outpatient setting, I explored the child’s life at school and in other community settings. It is important to discover what play experiences are motivating and have the potential to spark imagination and development in the child of interest. Simple, easy to implement strategies like the ones used in the study aimed at increasing playfulness may be applicable to my case study and in various environments.


Abstract:
OBJECTIVE This study examined the roles that play occupies within current occupational therapy practice with preschoolers.

METHOD Two hundred twenty-four pediatric occupational therapists completed mail questionnaires designed to ascertain how they use play in their practice, their knowledge and use of play assessments, and potential constraints on their use of play.

RESULTS Although respondents indicated that play was important in motivating children and frequently used play as a treatment modality or reinforcer, they less frequently assessed play behaviors or wrote treatment goals and objectives related to play. Differences were found between school-based and non-school-based respondents regarding the discipline or model that addresses play in the work setting, the use of play assessments, and constraints that limit the use of play in the work setting.

CONCLUSION The results suggest a need for increasing the emphasis on play in entry-Level curricula and continuing education, improving clinician access to valid and reliable play assessments, and completing studies designed to examine the use and efficacy of play in occupational therapy intervention.

Summary and Significance:

Play is one of three primary roles addressed in the theoretical foundations of occupational therapy practice. Therapists have used play as a means for assessment and evaluation for decades, although its specific uses vary. Need has been expressed to address the role of play in relation to occupation, embrace it as a practice area, and legitimize its use in practice through research. Surveys of therapists have provided information about the scope of practice in pediatrics, differences in play behaviors, and play as a treatment modality. The present study examined the role of play in pediatric occupational therapy with preschoolers aged 3-5 through
surveys. Research questions addressed included how play was included in treatment, how play behaviors are assessed, and if there are differences between school-based and non-school-based practice with regard to the role of play in pediatric practice. Results indicated that 91% of respondents stated that play was very important in motivating a child, 92% responded that they used play as a means to elicit sensory, motor, or social outcomes. Overall, 62% responded that they assessed play behaviors, with play being assessed more in non-school-based settings. The majority assessed play through clinical observation. Respondents also selected a variety of standardized means for assessing play that they found useful. Respondents stated that the personal frame of reference and role of occupational therapy were the two most important factors during goal writing in the work setting. Results also highlighted the value of an interdisciplinary approach in addressing role behaviors through play. Overall, results suggest that play is used more prevalently as a treatment modality. Play was used far more common as a treatment modality or reinforcer as compared to a means for developing role behaviors. In addition, sensory integration and developmental models of practice were used most frequently in conjunction with play across settings. Results also indicated a desire to use standardized play assessments, although therapists felt these assessments were not often easily available. Naturally the use of play in non-school-based and school-based occupational therapy differs because the role of the profession differs in these settings. With regard to goal setting related to play, reimbursement and physician prescriptions influence the therapist’s ability to set such goals. The article suggests the value of discovering what colleagues in various work settings perceive as important intervention provided by occupational therapy.

This study has various implications in clinical practice as related to my pediatric case study. The results of the study highlight the wide spread use of play in pediatric occupational
therapy. It provides suggestions for incorporating play into intervention that may be applicable to my case study such as a way to develop role behaviors. Despite the role of occupation in the history of occupational therapy, few respondents indicated that they use frames of reference with a basis in occupation. This warrants exploration in my case study of using play as an occupation in conjunction with other frames of reference as well as the use of models such as CO-OP and the model of human occupation. Child-directed play was also a common theme in the article and will be used in my case study as I ultimately aim to create child-centered interventions. In addition, tables in the article provide information about various assessment tools used to evaluate play behavior. I will explore the use of these tools during the evaluation process. The team approach was the most commonly cited model used to address role behaviors of play. This further validates the importance of my collaboration with various other health care professionals that provide intervention to my client of interest.


Abstract:
The clinical yields of studies of play conducted by graduate students in occupational therapy are identified, and the boundaries of the studies are described. The theme of change in play over time is acknowledged as prominent in all the studies. Open systems and hierarchy are helpful concepts for understanding the process of change in growth and development through play. Clinical tasks to facilitate the change process are cited.

Summary and Significance:
This study summarizes play studies conducted by graduate students in occupational therapy at the University of Southern California. The studies included in the research were
guided by three basic rules focusing on research method, conceptual mapping of play, and the intent of the study. Explanations for play processes were found in theories of play, cognition, personality, and motivation and were derived from various fields. Six themes common to most theorists emerged: play is a set of complex behaviors created through fun and spontaneity, play is sensory, neuromuscular, mental or a combination of the three, play involves repetition of exploration, experimentation, and imitation, play has its own space and time boundaries, play integrates the external and internal environments, and play follows a developmental progression. A table is provided detailing specific studies examined, content area, and clinical yield. Instruments for assessment of play are also suggested in the article. All studies revealed that the content and form of play change over time and the play environment must be responsive to these changes. The clinician must assess development and promote play experiences that foster appropriate growth. The clinical conclusion from the research explored is that one must examine both the cross sectional and longitudinal view of a child’s strength and weakness throughout development.

This study has various implications for my pediatric case study. As the article addresses, play is a complex task that can help facilitate growth and development at all stages of a child’s life. During my case study, I will need to pinpoint what developmental milestones are appropriate for my client of interest to achieve and foster a play environment that aides in this achievement. I will provide various mediums for play during therapy. Opportunities will be presented for active engagement in play that foster learning through doing. In order to provide evidence-based treatment, one must understand how play facilitates development and be able to apply principles and knowledge of play. This article has helped me better understand the theory behind play and its relevance to occupational therapy.

**Abstract:**

This qualitative study investigated the perceptions of play experiences and rationales for play choices of 6 boys and 4 girls between the ages of 7 and 11 years. Individual in-depth interviews were completed and then transcribed, and the transcripts were coded and analyzed using grounded theory methodology. Fun emerged from the data as the core category explaining the choice of specific play activities for children, and 4 additional categories of characteristics surfaced as contributors to the children’s perception of fun: relational, activity, child, and contextual. The relationships among the core category, the 4 characteristics categories, and the development of play preference and meaningfulness are illustrated in the Dynamic Model for Play Choice. Included is a discussion of the usefulness of the model in supporting the careful consideration of factors that will increase the perception of fun during therapeutic activities and facilitate client-centered pediatric practice.

**Summary and Significance:**

In order to understand the occupation of play and its value in occupational therapy, intervention studies about the complexities of play, its impact on behavior, and how those factors affect therapy are important to consider as they support evidence-based practice. Major influences on these play behaviors are how children make play choices. Although it can be challenging to determine whether children with disabilities play differently than typically developing children, it is important. Therefore this study was aimed at discovering children’s perceptions of play, meaning of play, and rationale for play choices. The grounded theory
approach used in the study uses inductive then deductive cycles to develop useful theory and
categorize relationships. Typically developing children, both male and female, between the ages
of 7-11 participated in one-on-one semi-structured open ended interview sessions on play
choices, reasons for play choice, and emotional aspects of play. This study will help me to better
conceptualize and use play as an intervention method, while improving my evaluation of play.

This study has various implications for my specific pediatric case study. Results indicated
that a child’s main criterion for a play experience was fun. It is the therapist’s responsibility to
discover what fun means to each individual through various methods such as assessment,
interview, and observation. Four main categories were identified that contributed to an activity
being denoted as fun; activity characteristics, relational characteristics, child characteristics, and
contextual characteristics. All of these factors must be carefully considered by the therapist in
order to fully understand what characteristics of activities are perceived as fun as a means of
making appreciate choices. Relational characteristics may be of particular importance for my
case study as relationships contribute in crucial ways to social development and community
involvement which is what I will be striving to achieve. This article suggests that play
development is dynamic and a never ending process, further confirming the importance of the
“just right challenge” in the therapeutic experience of play.

Therapy, 54, 73-82.

Abstract:

Objective. The differences in playfulness between young children with cerebral palsy and
developmental delays and children who are typically developing, and the comparative effects of
two interventions (one focused on improving mother–child interaction patterns, the other a neurodevelopmental treatment [NDT] session) on children’s playfulness were examined in this study. Reliability and validity of the Test of Playfulness (ToP) also were examined.

Method. Three trained raters used the ToP to score 38 children, half with cerebral palsy and developmental delays and half typically developing, as they played with their mothers. Mental ages of the children ranged from 3 to 18 months. The mother–child dyads in which the children had cerebral palsy and developmental delays were then randomly assigned to an intervention group. After a 1-hr intervention to improve mother–child interaction, the children were rescored on the ToP.

Results. After examination of ToP reliability and validity, children with cerebral palsy and developmental delays were found to score significantly lower on the ToP than their peers who were typically developing. In addition, children whose mothers received an intervention to improve mother–child interactions scored significantly higher on the ToP after intervention than before intervention. However, the gain scores of children whose mothers received the intervention were not significantly higher than those of children who received direct NDT.

Conclusion. The results suggested that when the shared goal of parents and therapists is to enable children to express their inherent playfulness, intervention to improve parent–child interactions may be more potent than intervention directed at improving the child’s developmental skills.

Summary and Significance:

This study sought to find out the differences in playfulness between children with developmental delays such as cerebral palsy and children who are typically developing, while comparing two different interventions, one aimed at improving caregiver and child interactions and the other being neurodevelopmental treatment. This is important because research suggests
that children with disabilities are limited in their expressions of play, in part due to interactions with caregivers. Not only should the occupational therapist study these interactions, but also be able to provide intervention. The initial step in intervention is evaluation; therefore another purpose of this study was to test the reliability and validity of Test of Playfulness (ToP).

This research has widespread implications for my future case study. The intervention aimed at improving mother-child interactions was described in detail and was shown to be successful at improving levels of playfulness. The components of the intervention may prove useful while conducting my case study as it revolved around providing caregiver education and implementation of useful strategies, such as nonverbal communication skills, outside the therapy clinic. Significant differences were found in levels of playfulness of children with development disabilities and those without, further emphasizing the need for occupational therapy services aimed at improving the play experience. Children with disabilities encounter more challenges than their peers. Occupational therapy can effectively support children’s abilities and skillfully alter environments that help children respond in more playful ways. This study has helped me consider and analyze the full range of possibilities for facilitating play.


Abstract:

Objective. Effective play and coping skills may be important determinants of children's adaptive behavior. Play and coping have undergone extensive individual study; however, these two variables have not been explored in relationship to each other. Method. The play behaviors of 19 randomly selected preschool children were rated by researchers using The Test of Playfulness.
The children's coping skills were rated by their teachers with the Coping Inventory. Results. A positive, significant correlation was found between children's level of playfulness and their coping skills. Overall, girls were rated as more playful than boys and scored higher in coping skills. Younger children (3(>-47 months of age) were rated as better players and copers than older children (47-57 months of age). Conclusion. This pilot study supports occupational therapy intervention in children's play environments and playful interactions as a way of influencing their adaptability in all life skills.

Summary and Significance:

Play and coping are crucial components of a child’s development. In occupational therapy, play and coping skills are typically evaluated separately then connected to functional behavior. However, both effective play and coping contribute greatly to a child’s sense of competence. Through play, coping skills can be developed and help shape lifelong adaptive behavior. This study aimed to discover the relationship between coping and play skills in children as healthy play and coping skills share similar characteristics. Play is an indication of behavior and because play ideally takes place in a risk free environment it can facilitate positive coping skills. Nineteen preschoolers participated in the study in which the ToP and the Coping Inventory were used as evaluation tools upon watching videos of the children engaging in free play. Results indicated a positive, linear relationship between coping and levels of playfulness. Also of interest is that girls rated higher than boys on coping scores.

This pilot study has various implications in clinical practice. It not only supports play as a means for the development of coping skills, but challenges the occupational therapist to discover what components of play contribute to skill development. I aim to accomplish this with the pediatric client for my case study. Although coping may not be the primary reason for
occupational therapy referral, coping is an essential skill that supports health and wellness across the lifespan and fostering it in all children is important, regardless of diagnosis.