

CONTINUING EDUCATION ARTICLE

Cognitive Orientation to Daily Occupational Performance (CO-OP) Approach: Evidence-Based, Occupation-Centered Intervention for Children

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ABSTRACT

Cognitive interventions, although rooted in psychology and education, have been widely used in occupational therapy (OT) practice. Currently, to support children and adolescents in meeting occupational performance goals, occupational therapists often employ such cognitive approaches as the Cognitive Orientation to daily Occupational Performance (CO-OP; Dawson et al., 2017; Polatajko & Mandich, 2004; Polatajko et al., 2001). CO-OP is a performance-based occupation-centered intervention that promotes skill acquisition and facilitates engagement in meaningful occupations for children and youth with occupational performance deficits. Emerging evidence supports its use with a variety of populations, including children with mild autism (Czmowski et al., 2014; Phelan et al., 2009; Rodger & Vishram, 2010), cerebral palsy (Jackman et al., 2014), and traumatic brain injury (TBI; Missiuna et al., 2010), and adults with TBI (Dawson et al., 2009) and stroke (McEwen et al., 2010; Skidmore et al., 2011). This article provides realistic, useful techniques to implement CO-OP in daily practice as an occupation-centered intervention approach with children that promotes skill acquisition and transfer for occupational performance in diverse contexts and environments.

LEARNING OBJECTIVES

1. Discuss essential elements and key features of CO-OP
2. Describe session format and methods used during the CO-OP implementation process

3. Discuss expected outcomes associated with CO-OP
4. Identify how the CO-OP approach could be modified without compromising fidelity to meet clients' needs
5. Identify strategies to incorporate the CO-OP approach into the occupational therapy intervention process

INTRODUCTION

Along with cognitive, behavioral, and educational theoretical models, CO-OP is based on the integration of learning theory and motor skill acquisition (i.e., motor learning principles; Mathiowetz & Bass-Haugen, 1994). The focus of the CO-OP approach is to assist the client in identifying, developing, and using cognitive strategies to perform daily activities (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammel et al., 2016), and it has four main objectives and includes seven key elements (Dawson et al., 2017; Polatajko & Mandich, 2004). It was originally developed and effectively used for children with developmental coordination disorder (DCD; Missiuna et al., 2001).

CO-OP has been described in literature as “a client-centered, performance-based, problem solving approach that enables skill acquisition through a process of strategy use and guided discovery” (Polatajko & Mandich, 2004, p. 2). In this approach, therapists emphasize the interaction between the client (or client and parent/caregiver/teacher) and environmental factors to promote children's successful participation in daily activities. CO-OP is embedded in such theoretical premises as family-centered care and occupation-centered practice that focuses on enabling participation. The occupation-centered (top-down) approach to occupational therapy practice refers to interventions that use engagement in occupation as the primary means of assessment, intervention, and measurement of outcomes (Trombly, 1993).

A top-down approach makes the association between intervention and client/caregiver-chosen goals clear to the family and

While the focus of CO-OP is on the child's achievement of occupational goals, the essential role of parents, caregivers, and teachers is recognized in terms of their perspectives regarding the child's strengths and functional deficits. Through collaboration between the therapist and the caregiver and teacher, and dynamic performance analysis of the child's occupational performance, the parents, caregivers, and teachers learn to identify actions that assist with generalization and transfer of cognitive strategies and skills (Dawson et al., 2017; Polatajko & Mandich, 2004; Polatajko et al., 2001).

The CO–OP approach has four main objectives: skill acquisition, cognitive strategy use, generalization, and transfer of learning. In a typical CO–OP intervention program, the child, in collaboration with parents/caregivers or teachers, selects and prioritizes three occupations to learn over 10 OT sessions (Scammell et al., 2016). Some examples of occupations could be handwriting, using cutlery, tying shoelaces, playing hopscotch at recess, or rollerblading. These activities must be essential and motivating to the client and could belong to various occupational domains (AOTA, 2014; Dawson et al., 2017; Harrison et al., 2007; Polatajko & Mandich, 2004). Through the intervention, the therapist uses global and domain-specific cognitive strategies to solve the child’s performance difficulties and facilitate skill development within the chosen occupations. The

Generalization and transfer of skills is defined as the ability of an individual to apply what they have learned in therapy to different environments and activities (Toglia, 1991, 2018; Toglia et al., 2012). Once the child attains the skills required to effectively perform three occupations, the focus of OT intervention within the CO-OP approach shifts to generalization of these activities beyond the therapy setting across environments, including home, community, and school. Finally, it is crucial that the child learns to apply and adapt their recently gained cognitive strategies and skills to other new occupations they encounter in daily life (Polatajko & Mandich, 2004). For the CO-OP approach to be successful, the child must be able to generalize and transfer skills to other environments and activities. This is a key goal of the CO-OP approach, and it is important for therapists to monitor and document the child's progress in this area. Strategies for promoting generalization and transfer of skills include practicing skills in different environments, using different materials, and encouraging the child to apply skills to new situations. It is also important to provide the child with opportunities to practice skills in the community and to encourage the child to use skills in daily life. By focusing on generalization and transfer of skills, the CO-OP approach aims to help the child become more independent and functional in their daily life.

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Performance Measure (COPM; Law et al., 2014) is used to identify the child's performance issues and assist with the formulation of intervention goals.

Polatajko and Mandich (2004) recommend the use of a daily activity log to record the activities a child identifies as important over the course of a day. Using a daily activity log facilitates administration of the COPM and discussion about the child's self-care occupations, schoolwork, homework, and play and leisure occupations as well as organizational and social activities like getting ready for school and managing relationships at school. The COPM can be administered to the child alone or in conjunction with the parent/caregiver/teacher. The COPM is also used as a tool assisting with the prioritization of goals and as an outcome measure. The COPM records the child's ratings of performance and satisfaction prior to and after the intervention.

Other goal-setting tools, such as the Perceived Efficacy and Goal Setting System (PEGS; Missiuna et al., 2004; Pollock & Missiuna, 2015), Pediatric Activity Card Sort (PACS; Mandich et al., 2004), and Child Occupational Self-Assessment (COSA; Kramer et al., 2014), can be used to determine intervention goals. Goal setting and prioritization may require a negotiation among the child, parent/caregiver, teacher, and the therapist. This might occur when the parent, caregiver, or teacher and the child view goals from different perspectives. In this case, an agreement to work on the combination of the child's goals (e.g., playing handball at recess) and the parent/caregiver's goal (e.g., improving handwriting) must be achieved. This can be effective as long as the child acknowledges that the parent/caregiver's goal is challenging and they have some interest and motivation to improve this skill (even if just to appease their parents or avoid completing work during the recess time). Collaboratively identified occupation-based goals become the focus of the CO-OP intervention program.

Essential Elements: Dynamic Performance Analysis

The second essential element of the CO-OP intervention is dynamic performance analysis (DPA). DPA is an observation-based (direct or recorded) process in which the specific performance breakdowns are identified and addressed using the problem solving structure (Polatajko et al., 2000). DPA recognizes that performance is the result of the interaction among the person, the environment, and the occupation (AOTA, 2014). The therapist, alone or in collaboration with the client, caregiver, or teacher, analyzes the child performing the task and defines performance problems. The focus is on the fit among the client's abilities, skills, and actions and the task and environmental demands and supports. DPA includes examining the actual activity, the child/caregivers' report of the performance, or a video of the activity as it occurs in the natural environment. DPA is typically performed for each specific occupation identified within the goal and therefore is an ongoing and repetitive process of identification of breakdown points within each goal-related occupation. It is very child and activity specific and occurs throughout the CO-OP sessions.

While children may have similar goals, the specific points of performance breakdown are unique. The ultimate aim of DPA is to identify performance breakdown points unique to the client and establish cognitive strategies to bridge the gap between performance issues and skill acquisition for goal achievement (Dawson et al., 2017; Scammell et al., 2016).

Essential Elements: Cognitive Strategy Use

Global and domain-specific cognitive strategies, the third essential element of the CO-OP approach, involve goal-directed cognitive processes that facilitate performance and support skill acquisition, generalization, and transfer (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammell et al., 2016). These strategies differ from the specific cognitive operations inherent to the task itself in that the child uses cognitive strategies to problem solve a performance issue and monitor the outcome, which promotes metacognition (thinking about one's thinking; Flavell, 1979).

Two types of strategies are used in the CO-OP approach: global (executive or metacognitive) and domain specific (task specific). The global strategy, *Goal-Plan-Do-Check* (GPDC; Meichenbaum, 1977), supports problem solving and is intended to be used over long periods of time in a variety of different contexts. Through the use of global cognitive strategy, the child strives to solve occupational performance problems:

GOAL: *What do I want to do?*

PLAN: *How am I going to do it?*

DO: *Do it!*

CHECK: *How well did my plan work? Do I need to revise my plan?*

The therapist introduces the child to the GPDC strategy and teaches how to use it during the first few CO-OP sessions. The therapist often uses a puppet or a favorite toy to teach the global strategy. Additionally, the therapist might develop visual concept maps to assist the child (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammell et al., 2016).

Initially, the therapist promotes the use of the GPDC framework. Later, as the child becomes more familiar with the global strategy, they gradually begin to initiate its use independently. Through the process of overtly talking oneself through the occupation, the steps become internalized and eventually covert; speech (verbal mnemonic) then guides the client's behavior (Missiuna et al., 2010; Polatajko & Mandich, 2004). Each subsequent intervention session is based on the global strategy.

The second type of cognitive strategies used in CO-OP is domain-specific strategies (DSS). DSS are specific to a task or part of a task and support the acquisition of the particular skills in the particular context. All DSS are established in verbal guidance (Dawson et al., 2017; Missiuna et al., 2010; Polatajko & Mandich, 2004). After the child and therapist have identified the DSS, the therapist reinforces their use during the subsequent intervention sessions. The goal is for the child to fully understand the role of the DSS and to independently use both global and domain-specific cognitive problem-solving strategies through self-talk in the absence of

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Table 2. Main Elements and Key Features of Guided Discovery (Dawson et al., 2017; Polatajko & Mandich, 2004)

DSS Element	Key Features
1. Do one thing at a time	Although the child may experience several problems during occupational performance, skills are learned, not developed. Thus, it is important to keep the intervention and the client focused on one step at the time.
2. Ask, don't tell	Through questioning, the child is taught to think critically, analyze, focus on the relevant aspects of the performance, and evaluate solutions. When the client discovers the solution to a performance problem, they are likely to remember that solution and use it more often than when they are told the solution.
3. Coach, don't adjust	The occupational therapist does not make performance adjustments, but instead brings these adjustments to the child's attention by guiding the child to discover personal, task, or environmental modifications that will improve occupational performance during the session and in the absence of the therapist.
4. Make it obvious	The therapist makes clear the components of the task that the child needs to attend to and the relationship between strategy use and the outcome.

the therapist for generalization and transfer. As the interventions progress, the therapist encourages the child to talk through a sequence of performance, to self-coach, self-guide, and self-question (Dawson et al., 2017; Polatajko & Mandich, 2004). Examples of domain-specific cognitive strategies that can be used within CO-OP based on the individual occupations and goals include

1. Self-coaching: *I can do this! Only a few more times and I will have it!*
2. Self-guidance/verbal script/mnemonic techniques: *Make bunny ears* when tying shoes; *Use helper hand* when printing or cutting.
3. Attention to doing/verbal script: *Where do I start my letters? At the top, at the top!* when forming letters or printing.
4. Body position: *Pinch the pull the tab between your index finger and thumb* when buttoning (pinching the button to improve manipulation).
5. Feeling the movement: *Feel the edge of the button and grip that as you pull it through the hole* when buttoning.

ESSENTIAL ELEMENTS: GUIDED DISCOVERY

Guided discovery is a method of instruction in which the occupational therapist acts as a facilitator of active learning. It is recognized as the intermediary approach between direct teaching and learning through pure exploratory discovery (King et al., 2017). In this process, the client is assisted with problem identification but is not provided with the solution. The child is encouraged to self-identify the solution while the therapist provides hints, coaching, feedback, or modeling.

In the CO-OP approach, guided discovery is used in conjunction with the DPA process to identify where the child is having difficulty and unable to perform the activity and to develop the plan within the GPDC problem-solving strategic process. Guiding the child to outline the action plan based on GPDC and to independently develop DSS supports self-efficacy

(Dawson et al., 2017; Polatajko & Mandich, 2004; Scammell et al., 2016). When the child becomes stuck while performing the occupation, the occupational therapist questions the child to discover a plan, execute the plan, and then evaluate the plan to see if it worked. Therefore, guided discovery supports both cognitive strategy use and skill acquisition (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammell et al., 2016). Guided discovery has four main elements: one thing at a time; ask, don't tell; coach, don't adjust; and make it obvious (Dawson et al., 2017; Polatajko & Mandich, 2004). Table 2 depicts four main elements and their key features.

Essential Elements: Enabling Principles

Enabling principles, the final essential element of the CO-OP approach, are a set of fundamental concepts designed to promote learning and support skill acquisition, generalization, and transfer. These are typical attributes of the occupational therapy sessions and are exceedingly important in engaging the child in therapy. The core set of CO-OP's enabling principles are: make it fun, promote learning, work toward independence, and promote generalization and transfer (Dawson et al., 2017; Polatajko & Mandich, 2004).

One of the therapist's key roles within the CO-OP approach is to ensure the child's active engagement in the process. Making activities fun, promoting learning via incorporation of the client's interests and preferences, and working toward independence through the use of questions that lead the child to discover new and refine existing strategies promotes the client's active participation in CO-OP intervention. Motivating the client, facilitating discovery and independent use of cognitive strategies outside of the therapy room, and emphasizing parent/caregiver/teacher involvement in the CO-OP approach ensures generalization and transfer of skills and strategies to all environments and future occupations (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammell et al., 2016).

Structural Elements: Parent/Caregiver/Teacher Involvement

Parent/caregiver/teacher participation in the CO-OP intervention is identified as a variable structural element. This participation ensures that the people in the child's life who play a significant role in the transfer and generalization of the skills and strategies have the ability to support the child and facilitate success. Parents, caregivers, and teachers are encouraged to observe as many CO-OP sessions as possible to assist the child in generalizing their learning to home, school, and community environments and transferring knowledge to skills beyond the termination of treatment (Dawson et al., 2017; Polatajko & Mandich, 2004). In some cases, therapists directly teach parents to use CO-OP (Chan, 2007), which suggests that with proper support from an occupational therapist, parents are able to engage in analysis of performance breakdown and guide the child's discovery of appropriate strategies. In a Hong Kong study, Chan (2007) demonstrated that parents could be taught how to implement the key features of CO-OP to realize performance gains in their children. From experience, teachers need to be adequately assisted to facilitate cognitive strategy transfer during relevant tasks in the classroom; however, their engagement in the process can be effective in guiding the child's discovery and use of cognitive strategies at school.

Structural Elements: Intervention Format

The intervention format for CO-OP includes session sequence, session format with necessary data collection to establish performance levels before and after the intervention, goal setting, provision of home activities, and materials used to support implementation (Dawson et al., 2017; Polatajko & Mandich, 2004). Typically, in the first one to two sessions, the occupational therapist establishes the client's present level of functioning and engages the client in a collaborative process of goal setting. To establish performance baseline, the therapist often uses the Performance Quality Rating Scale (Martini et al., 2014). To assist with occupation-based goal setting, the therapist can use the COPM (Law et al., 2014), PACS (Mandich et al., 2004), or COSA (Kramer et al., 2014). Additionally, the practitioner teaches the client the CO-OP global cognitive strategy (i.e., Goal-Plan-Do-Check) within the first few sessions CO-OP.

During the next few sessions, the occupational therapist and the client, or the therapist, the child, and the parents/caregivers/teachers, conduct DPA, apply global cognitive strategy to identify DSS that support goal attainment, and identify and complete homework to promote generalization and transfer. In the last session, the therapist readministers assessments to measure outcomes. The COPM (Law et al., 1996) is generally readministered to the client and caregivers. CO-OP typically requires 10–12 intervention sessions, with the typical length of 50–60 minutes and weekly or biweekly frequency. This amount may be adjusted to meet the client's needs. With an exception of the first two sessions and the last session, the general intervention format remains the same and includes an introduction to the session, review of the homework, application of cognitive strategies focused on goal attainment, generalization and transfer activities, and assignment of homework for the next session (Dawson et al., 2017; Polatajko & Mandich, 2004).

The materials used within CO-OP may vary, but frequently include strategy or homework sheets, a visual mnemonic for the global cognitive strategy, a puppet or client's preferred toy to teach GPDC, and materials relevant to the identified occupation-based goals, which will vary depending on the client's occupations. CO-OP interventions may be delivered individually or in groups (Martini et al., 2014; Thornton et al., 2016) and in person or by telerehabilitation (Dawson et al., 2017; Polatajko & Mandich, 2004). Table 3 provides a summary of the CO-OP key elements.

CLIENT-RELATED OUTCOMES AND MODIFICATIONS

The CO-OP approach is a complex intervention and a considerable amount of research is being accumulated supporting its use and its efficacy (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammel et al., 2016). Based on the current evidence and fundamental concepts of CO-OP, when implemented with fidelity, several client-related outcomes can be expected as the result of this intervention. Table 4 on page CE-6 describes expected client-related outcomes of the CO-OP approach.

In general, for the CO-OP approach to be successful, the research highlights the importance of a certain level of cognitive functioning and active engagement from the client and caregivers (Polatajko & Mandich, 2004). Additionally, achievement of the above outcomes highly depends on the accurate appli-

Table 3. CO-OP: Seven Key Features (Polatajko & Mandich, 2004)

Client Chosen Goals	Dynamic Performance Analysis	Cognitive Strategy Use	Guided Discovery	Enabling Principles	Parent/Caregiver Involvement	Intervention Format
• Setting parameters • Daily activity log • PACS, COPM, PQRS	• Motivation • Task knowledge • Performance competence	• Global cognitive problem solving strategy • Domain-specific strategy • Consistent strategy use	• One thing at a time • Ask, don't tell • Coach, don't adjust • Make it	• Make it fun • Promote Learning • Work toward independence • Promote generalization and transfer	• Active participation to promote generalization and transfer	• Program structure • Session structure • Materials

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Table 4. Expected Client-Related Outcomes of CO–OP Approach (Dawson et al., 2017)

Outcome	Description
1. Dynamic performance self-analysis skills development	Client or parents/caregivers/teachers demonstrate ability to analyze their own performance and identify problems
2. Cognitive strategy use (global and domain specific)	Client is able to apply global strategy and generate and apply domain-specific strategies to various occupations within different contexts
3. Goal achievement and skill acquisition	Client achieves identified goals and is able to consistently demonstrate specific skills for various occupations
4. Metacognition	Client demonstrates knowledge concerning their own cognitive processes, psychological, social, and physical behavior and abilities
5. Self-regulation	Client demonstrates ability to modify performance and organize behavior during performance of occupations
6. Self-efficacy	Client demonstrates improved confidence and satisfaction with their own performance
7. Impairment reduction	Based on research, in some populations, improvement in underlying performance issues may occur
8. Meaningful daily life outcomes	Based on research, improvement in quality of life and performance satisfaction may occur

cation of the CO–OP intervention. Research evidence guide the implementation of CO–OP (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammel et al., 2016). Modifications to CO–OP should not involve the essence of the intervention and should be limited to changes made only within the structural elements (i.e., parent/caregiver/teacher involvement, intervention format). As a complex intervention, CO–OP may tolerate nonessential adaptations to optimize application to specific client populations or practice settings (Dawson et al., 2017; Polatajko & Mandich, 2004).

CO-OP APPLICATION CASE EXAMPLE: SELF CARE

Leah was an 11-year-old girl diagnosed with developmental coordination disorder (DCD; American Psychiatric Association [APA], 2013). Her parents, who requested an occupational therapy evaluation, brought Leah to a private occupational therapy clinic during the summer school break. Leah's pediatrician referred her to the clinic after her parents expressed their concerns and regrets that Leah was unable to take a weeklong elementary school trip to visit the nation's capital due to difficulties completing a variety of self-care activities, such as tying her shoes, dressing in appropriate layers, buttoning buttons, engaging and zipping zippers, taking a shower, and managing her long hair. An assessment of Leah's fine motor skills was conducted, revealing challenges with in-hand manipulation skills, sequencing of the steps of motor tasks, and bilateral motor coordination skills. Leah's challenges in these areas were affecting her ability to be independent in school and at home.

Leah's occupational therapist decided to use the CO–OP approach to support skill acquisition. During the initial session, the occupational therapist administered the COPM (Law et al., 2014) to Leah and her mother, which promoted setting occupation-based goals in the area of self-care. The first three goals focused on independently tying Leah's shoes, buttoning buttons, and managing zippers. Throughout the first two sessions, the therapist implemented DPA to better understand Leah's motivation and task knowledge and identify current occupational performance deficits. DPA revealed the following breakdown points for the shoe-tying goal: Leah doesn't know how to form the loops, struggles with manipulating laces in her hands and has difficulty holding two loops at the same time, and does not know how to tie the final knot.

Within the three initial sessions, the occupational therapist also introduced the Goal-Plan-Do-Check framework and applied it to activities Leah was already successful in completing. In doing so, Leah understood how the Goal-Plan-Do-Check strategy could be applied. She used it to develop a plan for learning how to tie her shoes and manage buttons and zippers. Working with Leah's parents, the occupational therapist explained this strategy and discussed how to incorporate it into Leah's daily activities and generalize this strategy to other tasks.

As the sessions progressed and specific goals were addressed, the therapist, Leah, and her parents identified a variety of DSS to assist her in skill acquisition. Through identifying proper body–hand positioning, and through

self-instruction and self-guidance by using verbal mnemonics, Leah mastered the three selected skills within the 12 CO–OP therapy sessions. Per parent report, global and task-specific strategies transferred to the rest of Leah's self-care activities and to learning how to rollerblade at the beach (Rodger & Kennedy-Behr, 2017).

Examples of the GPDC and DSS use for tying shoes included the following:

Global Cognitive Strategy

1. Goal: *Tie school shoes independently*
2. Plan: *Pay close attention to doing, take your time, use motor mnemonic, body position*
3. Do: *Tie one shoe*
4. Check: *Went too fast, need to slow down and focus*

Domain-Specific Strategies

- Taking time: *Use a visual timer*
- Attention to doing: *Making an X; glue my loop to the shoe*
- Motor mnemonic and verbal script: *Bunny ears, bunny ears, playing by a tree. Crisscrossed the tree, trying to catch me. Bunny ears, Bunny ears, jumped into the hole, popped out the other side beautiful and bold.*
- Body position: *Pinch the lace together with your pointer and your thumb*

CO-OP APPLICATION CASE EXAMPLE: FORMAL EDUCATION PARTICIPATION (HANDWRITING)

Peter was a 9-year-old boy diagnosed with high-functioning autism spectrum disorder (ASD; APA, 2013). He attended fourth grade at the local elementary school within the general curriculum classroom, where a teacher and a classroom aide engaged him in learning activities. One of Peter's individual educational program (IEP) goals was handwriting, as he was often required to redo his written work at school and at home to improve legibility. In addition to motor skill deficits, Peter also experienced issues with changes in his routine, sensory processing, and transitions at school, especially if he was unexpectedly required to stay in class and redo his messy work.

Peter's occupational therapist decided to use the CO–OP approach, along with a sensory-based handwriting intervention program to support handwriting skill acquisition. During the goal-setting session, among other occupations, Peter chose to work on his handwriting and agreed to the goal of printing neatly. Knowing he would no longer miss the time he spends at the sensory room during recess or in his quiet sensory classroom area enhanced Peter's motivation to improve his writing.

During the DPA, the occupational therapist and Peter identified the following breakdown points: inconsistent and sometimes incorrect letter formation, insufficient spacing between words in the sentence, incorrect placement of the letters on the lined paper, and writing too fast. Peter learned the concept of the Goal-Plan-Do-Check during the second intervention session and his handwriting task provided a visual and concrete activity to help him envision this strategy. Along with the therapist,

Peter developed some simple DSS to assist with producing neat written work, such as go slow, use finger space between words, start letters at the top, and stay within two lines. By using a stopwatch and timing fast and slow writing, he discovered that by slowing down, his writing became much neater. For spacing, Peter initially used his little finger, but over time did not need to use this as a cue and internalized how much space was typically required.

The occupational therapist modified the session format to meet Peter's needs and used a combination of CO–OP strategies and handwriting practice. Two DSS within the supplemental knowledge area, comparative checking of the differences between Peter's and the therapist's writing and a self-rating system, worked well. As a visual learner, Peter paid attention to letter formation and placement demonstrated by the occupational therapist. He enjoyed putting marks or small stickers on letters he thought were the best ones he wrote after viewing samples. This strategy promoted his ability to focus on letters that were messy and aided in development of motor strategies for correcting their formation and placement on the lined paper. Peter also enjoyed checking his strategy use by self-rating his written output on a 10-point rating scale, awarding stickers for neatest word, and giving his sentences a mark out of 10. This provided an opportunity for discussions about how he could make a 7/10 sentence become a 10/10 sentence next time. The stickers were always awarded by Peter, not the therapist, as it was his appraisal during the check phase that was critical and promoted improvement in his writing.

Peter's classroom aide consistently observed CO–OP sessions and facilitated cognitive strategy use within the classroom. Several sessions were videotaped and sent home for Peter's parents to review and follow. Within 12 45-minute biweekly intervention sessions, Peter's handwriting legibility improved and he only missed one recess in the sensory room due to staying behind and correcting his handwriting assignment (Rodger & Kennedy-Behr, 2017). Examples of the GPDC and DSS for handwriting included:

GPDC

1. Goal: *Write neatly at school and at home*
2. Plan: *Pay close attention to writing sample, go slow, use motor mnemonic, use space between words, stay inside two lines*
3. Do: *Write three sentences*
4. Check: *Went too fast, need to slow down, pay attention to timer, rate words on scale from 1 to 10, award stickers*

Domain-Specific Strategies

- Taking time: *Use a timer*
- Attention to doing: *Start letters at the top; feel the lines, stay inside*
- Motor mnemonic and verbal script: *S looks like a dollar sign, 3 looks like a B, check to see if a line makes a B, g looks like an a with a tail, across and down for 7*
- Feel the movement: *Trace letters in the air*
- Body position: *Hold paper still with other hand*

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CONCLUSION

The CO-OP approach is an evidence-based, client-centered, problem-solving, performance-based approach in which the client's, or client- and family-specified, goals are addressed from a learning perspective. CO-OP focuses on the child's occupational and social roles, occupations, and the environmental contexts that both facilitate and impede performance. The primary objective of CO-OP is skill acquisition through cognitive strategy use. CO-OP offers a valuable contribution to occupational therapy practice. It incorporates all of the elements of best practice in contemporary occupational therapy (e.g., family centered, occupation based, enablement focused). Additionally, CO-OP emphasizes the validity of an orientation toward solutions and the potential to enable performance through parent, caregiver, or teacher involvement, promoting generalization, transfer, and long-term change. Research efforts targeting the fidelity of the CO-OP approach with a wide variety of clients and its role in enhancing participation and improving quality of life and satisfaction for occupational therapy clients would be a valuable contribution to the body of knowledge in this area (Dawson et al., 2017; Polatajko & Mandich, 2004; Scammell et al., 2016).

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Final Exam

Article Code CEA0720

Cognitive Orientation to daily Occupational Performance (CO-OP) Approach: Evidence-Based, Occupation-Centered Intervention For Children

To receive CE credit, exam must be completed by July 31, 2022

Learning Level: Intermediate to Advanced

Target Audience: Occupational Therapy Practitioners

Content Focus: Domain: Client Factors; OT Process: Occupational Therapy Evaluation and Interventions

1. Two of the key features of the CO-OP approach are:

- A. Cognitive strategy use and guided discovery
- B. Component-based goals and dynamic performance analysis
- C. Activity analysis and skill acquisition
- D. Parent/caregiver involvement and self-efficacy

2. During the dynamic performance analysis, the occupational therapist strives to perform all of the following except

- A. Determine specific breakdown points in the client's occupational performance
- B. Determine what needs to change within the task, the client, and the environment to enable performance
- C. Develop the client's skills to find solutions to their performance deficits
- D. Determine specific underlying impairments that impede the client's occupational performance

3. Guided discovery is:

- A. A method of intervention in which the occupational therapist facilitates the client's practice of skills that are lacking
- B. A method of instruction in which the occupational therapist acts as a facilitator of active learning
- C. A method of treatment in which the occupational therapist demonstrates and teaches skills that are lacking
- D. A method of intervention in which the occupational therapist properly positions the client and facilitates appropriate movement patterns

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4. One of the major client-related outcomes of the CO-OP approach is:

- A. Short-term cognitive problem solving strategy use
- B. Improvement in fine motor and gross motor skills
- C. Clients' generalization and transfer of strategy use and skills to prevent future occupational performance problems
- D. Goal achievement through adaptive strategies provided to the client

5. Two of the key elements of guided discovery include:

- A. Do one thing at a time; ask, don't tell
- B. Adjust, do not coach; explain, do not ask
- C. Make it obvious; tell and problem solve
- D. Teach task as a whole; coach and adjust

6. In the CO-OP approach, the goals focus on:

- A. Underlying body structures and functions
- B. Underlying skill deficits
- C. Occupational performance
- D. Activity analysis

7. Which of the following is the true statement describing a domain-specific cognitive strategy?

- A. A domain-specific strategy is used consistently across various tasks and is directing a global strategy
- B. A domain-specific strategy does not change based on the task and remains the same regardless of the client's situation
- C. A domain-specific strategy should not be used with children with ASD
- D. A domain-specific strategy is specific to the task or part of the task and varies depending on the child or a situation

8. What is the global cognitive problem solving strategy used in the CO-OP approach to help facilitate learning?

- A. Goal, Plan, Do, Check
- B. Goal, Do, Try, Check
- C. Plan, Execute, Check, Revise
- D. Plan, Goal, Do, Check

9. Which of the following statements is true regarding the CO-OP approach?

- A. The CO-OP approach teaches children how to correctly perform an occupation to help enhance their chances of demonstrating progress on the assessments
- B. The CO-OP approach is task and context specific and does not promote generalization and transfer of learning
- C. The CO-OP approach is performance based and takes a top-down approach in order to develop occupational competence
- D. The CO-OP approach can only be used with children with Developmental Coordination Disorder (DCD)

10. When using the CO-OP approach to teach a child how to tie shoelaces, using the term "bunny ears" is what kind of domain-specific strategy (DSS)?

- A. Attention to doing the task
- B. Supplementing task knowledge
- C. Verbal mnemonic
- D. Body position

11. Typical assessment tools utilized in the CO-OP approach are all of the following *except*:

- A. Performance Quality Rating Scale
- B. Peabody Developmental Motor Scales 2nd Edition
- C. Pediatric Activity Card Sort
- D. Canadian Occupational Performance Measure

12. Within the CO-OP approach, parent/caregiver involvement and intervention session format are considered:

- A. Essential elements
- B. Principles of guided discovery
- C. Elements of the global cognitive strategy
- D. Structural elements

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