

Cognition, Cognitive Rehabilitation, and Occupational Performance

The American Occupational Therapy Association (AOTA) asserts that occupational therapists and occupational therapy assistants, through the use of occupations and activities, facilitate individuals' cognitive functioning to enhance occupational performance, self-efficacy, participation, and perceived quality of life. Cognition is integral to effective performance across the broad range of daily occupations such as work, educational pursuits, home management, and play and leisure. Cognition also plays an integral role in human development and in the ability to learn, retain, and use new information in response to changes in everyday life.

The purpose of this statement is to clarify the role of occupational therapy in evaluating and addressing cognitive functioning and the provision of cognitive rehabilitation to maintain and improve occupational performance. The intended primary audience for this statement is practitioners within the profession of occupational therapy. The statement also may be used to inform recipients of occupational therapy services, practitioners in other disciplines, and the wider community regarding occupational therapy theory and methods and to articulate the expertise of occupational therapy practitioners in addressing cognition and cognitive dysfunction.

Occupational therapy theory and research support the principle that cognition is essential to the performance of everyday tasks (Toglia & Kirk, 2000). Occupational therapy practitioners' educational preparation and focus on occupational performance are grounded in an understanding of the relationship between cognitive processes and performance of daily life occupations. This understanding is in keeping with the disciplinary perspective of occupational therapy that emphasizes engagement in the client's desired occupations as a means of promoting cognitive functioning and occupational performance (Baum & Katz, 2010; Giles, 2010). Occupation is understood as both the means and the end of occupational therapy intervention. Participation in occupations enhances client functioning in areas such as cognition, the improvement in which leads to enhanced participation in desired daily activities.

Occupational therapy practitioners administer assessments and interventions that focus on cognition as it relates to participation and occupational performance. Furthermore, occupational therapy practitioners believe that cognitive functioning can only be understood and facilitated fully within the context of occupational performance. This understanding of the relationship among the client, his or her roles, daily occupations, and context make occupational therapy a profession that is uniquely qualified to address cognitive deficits that negatively affect the daily life experience of the individual.

¹When the term *occupational therapy practitioner* is used in this document, it refers to both occupational therapists and occupational therapy assistants (AOTA, 2006). *Occupational therapists* are responsible for all aspects of occupational therapy service delivery and are accountable for the safety and effectiveness of the occupational therapy service delivery process. *Occupational therapy assistants* deliver occupational therapy services under the supervision of and in partnership with an occupational therapist (AOTA, 2009).

Occupational therapy practitioners may choose from a range of interventions that use engagement in the client's desired occupations and activities with a focus on function-based outcomes. Considerable progress has been made over the past decade in advancing the knowledge of cognition and in identifying effective rehabilitative strategies.

Definitions

In this document, *cognition* refers to information-processing functions carried out by the brain (Diller & Weinberg, 1993) that include, attention, memory, executive functions (i.e., planning, problem solving, self-monitoring, self-awareness), comprehension and formation of speech (Sohlberg & Mateer, 1989), calculation ability (Roux, Boetto, Sacko, Chollet, & Trémoulet, 2003), visual perception (Warren, 1993), and praxis skills (Donkervoort, Dekker, Stehmann-Saris, & Deelman, 2001). Cognitive processes can be conscious or unconscious (Eysenck & Keane, 1990) and often are divided into basic level skills (e.g., attention and memory processes) and executive functions (Schutz & Wanlass, 2009).

Cognitive dysfunction (or cognitive impairment) can be defined as functioning below expected normative levels or loss of ability in any area of cognitive functioning. The term *cognitive rehabilitation* has been widely discussed and used in a variety of contexts. However, there is no singular, consensus-based definition. In general, it refers to a broad category of “therapeutic interventions designed to improve cognitive functioning and participation in activities that may be affected by difficulties in one or more cognitive domains” (Brain Injury Association of America, 2011, p. 1). When occupational therapy practitioners provide intervention to improve cognitive functioning (i.e., cognitive rehabilitation), the therapeutic goal is always to enhance some aspect of occupational performance.

Occupations refer to “everyday activities” that are important to the individual and that help define the individual to himself or herself and others and that serve an individual's life roles (AOTA, 2008; Baum & Christiansen, 2005). Occupations help structure everyday life and contribute to health and well-being. Engagement in occupation as the focus of occupational therapy intervention involves addressing both the neurologically mediated occupational performance deficits and the individual's psychological responses to those deficits.

Cognitive Dysfunction

Cognitive dysfunction may occur across the lifespan and may be associated with a wide range of clinical conditions. Cognitive dysfunction can be transient or permanent, progressive or static, general or specific, and of different levels of severity affecting individuals in different domains of their lives. Even subtle cognitive impairments consistently influence social participation, subjective well-being, academics, employment, and functional performance across different ages and populations (Foster et al., 2011; Frittelli et al., 2009; Wadley, Okonkwo, Crowe, & Ross-Meadows, 2008). Most often, cognitive impairments are categorized by severity (mild or major neurocognitive disorder; American Psychiatric Association, 2000) or clinical conditions that causes the dysfunction (i.e., by diagnostic group).

Cognitive rehabilitation interventions for persons with stroke, traumatic brain injury (TBI), and dementias have the most robust empirical support (Cicerone et al., 2011; Golisz, 2009; Rohling,

Faust, Beverley, & Demakis, 2009), and persons with these conditions are among the most frequently seen by occupational therapy practitioners. Additionally, occupational therapy practitioners address cognitive barriers to functioning resulting from developmental disorders, environmental factors, or disease. Specifically, these populations include those experiencing cognitive dysfunction related to

- Human genetics and or development (e.g., environmental deprivation, fetal alcohol syndrome, learning disabilities, pervasive developmental disorders)
- Neurologic disease, events, injuries, and disorders (e.g., stroke, TBI, Parkinson's and Huntington's diseases, HIV/AIDS, Alzheimer's disease and related dementias, rheumatoid arthritis, diabetes, lupus, Lyme disease, multiple sclerosis, chronic fatigue syndrome, chronic obstructive pulmonary disease, cardiac and circulatory conditions).
- Mental illness (e.g., schizophrenia, major depressive disorder, bipolar disorder, substance use disorders)
- Transient or continuing life stresses or changes (e.g., stress-related disorders, pain syndromes, anxiety disorders, grief and loss).

In addition to rehabilitative approaches, occupational therapy practitioners recognize that there are many circumstances in which interventions to support cognitive functions can optimize occupational performance and quality of life. Habilitative approaches to cognitive functioning can be appropriate for populations with normative neurological development (e.g., interventions to enhance executive functions in the school-age population; see Case 1 in Appendix C) and the well elderly (in an attempt to prevent cognitive disability and occupational performance problems). Occupational therapy practitioners are in the forefront of using novel approaches to assess and enhance function among these diverse populations (Rand, Rukan, Weiss, & Katz, 2009).

Occupational Therapy Service Delivery

The occupational therapy service delivery process is broadly comprised of evaluation and intervention leading to the outcome of participation in areas of occupation. Occupational therapists are often a valuable part of an interdisciplinary team in which practitioner knowledge of cognition, participation, and context complement the interventions of other clinicians on the team, including, but not limited to, neuropsychologists and speech–language pathologists.

Evaluation of Occupational Performance

Occupational therapy evaluation focuses on determining what the client most needs and wants to be able to do and identifying the factors that either support or hinder the desired performance (AOTA, 2008). The *Occupational Therapy Practice Framework: Domain and Process* (2nd ed., AOTA, 2008) identifies the underlying factors and areas of occupation that occupational therapy practitioners consider during the evaluation and intervention process (i.e., client factors, performance skills, performance patterns, context and environment, activity demands). The interaction between a person's cognitive functioning and each factor is transactional in nature and, as such, cognitive functioning is always embedded in occupational performance and cannot be accurately understood in isolation.

In addition, the relationship of cognitive dysfunction to occupational performance is complex. Therefore, a thorough understanding of the contributions of various client factors and the current level of client participation must be sought (Giles, 2011; Lowenstein & Acevedo, 2010).

Occupational therapists examine cognition and performance from multiple perspectives and use multiple methods during the evaluation process, including interviewing the client and others (e.g., parent, teacher, caregiver), cognitive screening, performance-based assessments, environmental assessment, and specific cognitive measures.

The Cognitive Functional Evaluation (CFE) process is an example of a multifaceted approach used by occupational therapists for individuals with suspected cognitive disabilities (Baum & Katz, 2010; Hartman-Maeir, Katz, & Baum, 2009). The CFE process is intended to be customized to each person's needs and can include up to six types of assessments, as outlined in Appendix A.

Models for Intervention and Cognitive Rehabilitation

Occupational therapy scholars have developed several theoretical models that explain and guide intervention. These models, and the specific approaches and methods that they espouse, are used by occupational therapy practitioners to address cognition and to provide evidence-based cognitive rehabilitation as it affects occupational performance. These models include, but are not limited to, the

- Dynamic Interactional Model (Toglia, 2011)
- Cognitive Rehabilitation Model (Averbach & Katz, 2011)
- Cognitive Disabilities Model (Allen, Earhart, & Blue, 1992)
- Cognitive Orientation to Daily Occupational Performance model (CO-OP; Polatajko, Mandich, & McEwen, 2011)
- Neurofunctional Approach (NFA; Giles, 2010, 2011; Giles & Clark-Wilson, 1993; Parish & Oddy, 2007; Vanderploeg et al., 2008).

The development of occupational therapy theoretical models is ongoing, as is the refinement of their applicability to particular client populations, severity of deficits, and environmental contexts. Additional information about these theoretical models is included in Appendix B.

Key Features of Interventions

Many occupational therapy intervention models are multimodal and include a range of strategies adapted to an individual client's needs. Occupational therapists may select different approaches to address different types of occupational performance deficits in the same client. The following key features are found within various models and can assist practitioners in choosing an approach or approaches that are best suited to the client.

Global Strategy Learning and Awareness Approaches

Global strategy learning focuses on improving awareness of cognitive processes and assisting clients to develop higher order compensatory approaches (e.g., internal problem-solving and reasoning strategies) versus attempting to remediate basic cognitive deficits. This type of intervention relies on the holistic analysis skills of the occupational therapist in understanding the whole person and helping the client deconstruct his or her own performance. This approach enables clients to be able to generalize the application of these compensatory strategies to novel circumstances (Dawson et al., 2009; Polatajko et al., 2011). Case studies illustrating these approaches can be found in Appendix C (see Cases 1, 2, and 3).

Domain-Specific Strategy Training

Domain-specific strategy training focuses on teaching clients particular strategies to manage specific perceptual or cognitive deficits versus being taught the task itself. For example, the client may learn an internal routine to scan the whole environment to assist with left-sided neglect, may learn a social skills strategy to manage interpersonal interactions, or may learn to use a mental checklist to identify things to be recorded in a personal digital assistant. Case studies illustrating these approaches can be found in Appendix C (see Cases 3 and 4).

Cognitive Retraining Embedded in Functional Activity

In cognitive retraining, cognitive processes are addressed within the context of the activity (e.g., attention retraining during driving reeducation); the retraining is “context specific.” The transfer appropriate processing hypothesis of Park, Moscovitch, and Robertson (1999) suggests that performance on a particular task after training will improve to the extent that processing operations required to carry out that task overlap with the processes engaged during training. For example, problem-solving strategies developed in the context of a simple front-closing shirt-donning activity will carry over to a front-closing jacket-donning activity when that process is engaged.

Specific-Task Training

Specific-task training assists clients to perform a specific functional behavior (Mastos, Miller, Eliasson, & Imms, 2007; Parish & Oddy, 2007). In specific-task training, the therapist attempts to circumvent the cognitive deficit that hampers performance by teaching an actual functional task. The intervention is designed to help the individual achieve the occupational performance goal by learning a routine so that the cognitive deficits no longer interfere with occupational performance (Giles, 2010; Giles & Clark-Wilson, 1993).

“Errorless” learning is often used in preference to trial-and-error learning. By addressing basic-skills training, clients may be able to improve self-awareness, mental efficiency, and organization, resulting in continued cognitive improvements (Parish & Oddy, 2007). Case studies illustrating these approaches can be found in Appendix C (see Cases 3–6).

Environmental Modifications and Use of Assistive Technology

Environmental modifications and simplifications are a component of most of the approaches described. Part of the process of occupational therapy intervention involves addressing the complexity of activity demands and altering environmental contexts to enhance the match between the client's abilities and the environmental demands (Evans et al., 2000; Wilson, Baddeley, Evans, & Shiel, 1994). Several technology-based cognitive prosthetics have been developed as a scheduling assistant (to assist with memory impairment) and for task initiation and task guidance (to cue persons with cognitive impairment to undertake and complete functional routines) (Bergman, 2003; Gorman, Dayle, Hood, & Rumrell, 2003; Wilson, Scott, Evans, & Emslie, 2003).

The cueing systems may be used as an ongoing prosthetic or as a way to “extend” therapy and to become second nature as the client internalizes the routine. When occupational therapists think about the environment, they do not limit themselves to consideration of the physical environment (Giles, Wager, Fong, & Waraich, 2005). In addition to physical objects, Barris, Kielhofner, Levine, and Neville (1985) conceptualized other aspects of the environment that influence behavior, including the structure and sequence of tasks, the content of the social network, and values and beliefs embedded in culture (Giles, 2011). Case studies illustrating these approaches can be found in Appendix C (see Cases 2, 6, and 7).

Contributions to the Interdisciplinary Team

Occupational therapy practitioners are important members of interdisciplinary rehabilitation teams. As part of these teams, practitioners bring a unique focus on occupational performance as both an intervention and an outcome (AOTA, 2008; Baum & Katz, 2010; Giles, 2010). Interdisciplinary programs that address cognition are variously described as *comprehensive outpatient programs*, *postacute rehabilitation*, and *holistic neurologic rehabilitation* (Geurtsen, van Heugten, Martina, & Geurts, 2010; Turner-Stokes, 2008; Turner-Stokes, Nair, Sedki, Disler, & Wade, 2005) and often emphasize the integration of cognitive, interpersonal, and functional interventions within a therapeutic milieu.

Occupational therapy practitioners bring an understanding of the interrelatedness of the mind, body, and spirit and the transactional relationship of client factors, the environment, and occupational performance to the rehabilitation team (AOTA, 2008). Clients in these programs have been found to show increased self-awareness, increased self-efficacy for symptom management, increased perceived quality of life, and increased community integration (Cicerone et al., 2008, 2011).

Advancing Future Research

Considerable progress has been made over the past decade in advancing knowledge and rehabilitative strategies that improve the clients' occupational performance, self-efficacy, and perceived quality of life. Occupational therapy practitioners use existing and emerging evidence as summarized in systematic reviews (such as Cicerone et al., 2000, 2005, 2011) and the *Occupational Therapy Practice Guidelines for Adults With Traumatic Brain Injury* (Golisz, 2009) to guide their approach to evaluation and intervention. All of the occupational therapy approaches described in this statement have (at minimum) case-series and proof-of-concept

designs showing effectiveness, and some have been found effective in large-scale, multicenter, randomized controlled trials (Giles, 2010; Vanderploeg et al., 2008).

There is now a general consensus among several payers (including insurance companies and Medicare contractor policy statements) that sufficient information is available to support evidence-based protocols and implement empirically supported treatments for disability caused by cognitive impairment after TBI and stroke (Rohling et al., 2009). However, while there is some support from systematic reviews of cognitive interventions for persons with Alzheimer's disease, multiple sclerosis, and schizophrenia, no consensus as yet exists for these and other diagnostic groupings in regard to cognitive rehabilitation (McGurk, Twamley, Sitzer, McHugo, & Mueser, 2007; Sitzer, Twamley, & Jeste, 2006; Wykes, Huddy, Cellard, McGurk, & Czobor, 2011; Zarit & Femia, 2008). Occupational therapy practitioners continue to work to advance the evidence base in these areas.

Qualifications of Occupational Therapy Practitioners

Occupational therapy practitioners are well-qualified to assess and address cognitive performance issues affecting daily activity performance because of their education and training in cognitive functioning, task analysis, learning, diagnostic conditions, and a holistic understanding of the wide range of factors and contexts that affect performance (Accreditation Council for Occupational Therapy Education [ACOTE], 2012). The occupational therapist is responsible for the overall evaluation process, interpretation of the results, development, and management of the intervention plan. The occupational therapy assistant can perform those portions of the assessment as delegated by the occupational therapist, in which service competency has been established and in keeping with state laws and other regulations. All occupational therapy practitioners assume ethical responsibility for maintaining competence and determining whether they are qualified for independent or supervised practice (ACOTE, 2012).

AOTA asserts the importance of cognition to human performance and to the super-ordinate goals of occupational therapy. Based on theoretical models and evidence-supported methods and approaches, occupational therapy practitioners assess and address cognition so that clients may optimally perform the roles and activities that advance their productivity, wellness, and life satisfaction.

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Appendix A. Types of Cognitive Evaluations in Occupational Therapy Based on Cognitive Functional Evaluation Process

<i>Evaluation Type</i>	<i>Description</i>	<i>Examples</i>
Interview	Provides the occupational therapist with background information from the client or significant others and delineates the client’s occupational profile (occupational history, current status, and occupational goals) as well as the client’s views regarding the nature of any deficits he or she might have.	<ul style="list-style-type: none"> • Activity Card Sort (Baum & Edwards, 2008) • Canadian Occupational Performance Measure (Law et al., 1998)
Cognitive screening tools	Used to create a preliminary overview of the client’s strengths and weaknesses using standardized assessments	<ul style="list-style-type: none"> • Mini-Mental State Exam (Folstein, Folstein, & McHugh, 1975) • Short-Blessed Test (Katzman et al., 1983) • Montreal Cognitive Assessment (Nasreddine et al., 2005) • Allen Cognitive Level Screen–5 (Riska-Williams et al., 2007) • Loewenstein Occupational Therapy Cognitive Assessment (Katz, Itzkovich, Averbuch, & Elazar, 1989) • St. Louis University Mental Status Examination (Tariq, Tumosa, Chibnall, Perry, & Morley, 2006)
Performance-based assessments that may be used to assess cognitive- and executive function based–performance deficits once those have been established	Used to identify the occupational performance concerns to address in occupational therapy intervention. These measures themselves may or may not implicate specific cognitive or executive function deficits, and this relationship is established based on the skilled observation of the occupational therapist.	<ul style="list-style-type: none"> • Routine Task Inventory (Katz, 2006) • Rabideau, Kitchen Task–Revised (Neistadt, 1992) • Assessment of Motor and Process Skills (AMPS; Fisher & Bray Jones, 2010a, 2010b) • Executive Function Performance Test (EFPT; Baum, Morrison, Hahn, & Edwards, 2003), • Multiple Errands Test (Shallice & Burgess, 1991)

		<ul style="list-style-type: none"> • Arnadóttir OT-ADL Neurobehavioral Evaluation (Arnadottir, 1990) • Children’s Kitchen Task Assessment (Rocke, Hays, Edwards, & Berg, 2008)
Measures of specific cognitive functions and client factors (e.g., memory, attention), preferably those with established ecological validity	Used to develop a detailed understanding of the client’s occupational performance deficits or to inform in the design of interventions to help clients overcome occupational performance deficits	<ul style="list-style-type: none"> • Contextual Memory Test (Toglia, 1993) • Rivermead Behavioral Memory Test (Wilson et al., 1999; Wilson, Cockburn, & Baddeley, 1991, 2003) • Test of Everyday Attention (Robertson, Ward, Ridgeway, & Nimmo-Smith, 1994) • Behavioral Assessment of the Dysexecutive Syndrome (Wilson, Alderman, Burgess, Emslie, & Evans, 1996)
Specific measures of cognitive performance in the context of specific occupations	Used to determine how specific cognitive deficits manifest themselves in occupational performance	<ul style="list-style-type: none"> • ADL checklist for neglect • EFPT (Baum et al., 2008) • AMPS (Fisher & Bray Jones, 2010a, 2010b)
Environmental assessment	Provides the therapist with information about the environment and context in which the client needs to function in his or her daily life	<ul style="list-style-type: none"> • Safety Assessment of Function and the Environment for Evaluation (Chui et al., 2006) • Home Environmental Assessment Protocol (Gitlin et al., 2002)

Appendix B. Theoretical Models Guiding Occupational Therapy Cognitive Rehabilitation

Occupational therapy scholars have developed several theoretical models that explain and guide the intervention approaches used by occupational therapy practitioners to address the impact of cognition on occupational performance.

- **Toglia’s Dynamic Interactional Model** (Toglia, 2011) was developed for persons with stroke or TBI but is relevant to many people with cognitive dysfunction, including children with attention deficit hyperactivity disorder and adolescents (Cermak & Maeir, 2011; Josman, 2011). The Dynamic Interactional Model utilizes multiple activities in a variety of contexts to help individuals understand performance problems and develop strategies to enhance occupational performance. The overall goal of multicontextual intervention is to help the client gain more control over symptoms by efficiently and independently using strategies for information processing (Toglia, Johnston, Goverover, & Dain, 2010).
- The **cognitive rehabilitation model of Katz and Averbach** (Averbach & Katz, 2011) provides a comprehensive approach to clients with neurological impairment of differing severities. The approach focuses on enhancing retained cognitive abilities, the development of self-awareness, and the use or remedial cognitive-training strategies (targeting specific areas of cognitive function such as visual perception, visual–motor organization, and thinking operations), learning strategies (interventions designed to help the client develop learning strategies), and remedial strategies (to develop basic ADLs).
- **Allen’s Cognitive Disabilities Model** has been applied to persons with dementia, TBI, and severe mental health disorders (Allen et al., 1992). The cognitive disabilities model provides a way to describe deficits arising from damage in the physical or chemical structures of the brain and producing observable limitations

in “Routine Task Behavior.” The Allen battery of assessments provides tools that are used to predict what a person will be able to do (level, mode, patterns) across multiple domains of functioning; identifies the assistance that he or she will require, including safety considerations; and guides appropriate communication and teaching methods when appropriate (Allen et al., 1992; Kielhofner, 2009).

- The **Cognitive Orientation to Daily Occupational Performance (CO-OP)** model was developed for children with developmental coordination disorder but has been used widely with neurological and adult populations and across different types of dysfunction (Polatajko et al., 2011). CO-OP is a client-centered problem-solving and performance-based intervention that facilitates performance acquisition through a process of guided discovery of strategies that enable learning of skills. Strategies may be global and provide a general method of approaching any problem (i.e., Goal, Plan, Do, Check) or domain-specific (i.e., relating to one area of dysfunction only).
- The **Neurofunctional Approach** was developed for persons with independent living goals after TBI but has also been applied to persons after stroke and other acquired neurological impairment (Giles, 2010, 2011; Giles & Clark-Wilson, 1993; Parish & Oddy, 2007; Vanderploeg et al., 2008). The client and therapist collaboratively select specific performance goals. A task analysis is developed, and a “constraint” model is used to establish the client’s specific strengths and limitations and construct specific interventions to allow learning to take place (e.g., “cue experimentation” to determine the types of cues the client needs to be successful). Automatic behavioral routines are viewed as the foundation of effective functional and behavioral competencies for all individuals. Interventions are specifically tailored to the client’s abilities and are experiential. Evidence from social psychology, learning theory, errorless learning, self-generation, and over-learning literature is used in the design of task-specific skill-retraining programs.
- Several occupational therapy **models focus on the influence of the environment and the modification of task demands** on cognition and function. The Cognitive Disabilities Model is an important occupational therapy model that assists in the development of an understanding of a client’s needs for environmental support (Kielhofner, 2009). Many other occupational therapy models (Baum & Christiansen, 2005; Gitlin, 2003; Law et al., 1996) trace their roots to the Press-Competence Model (Izal, Montorio, Márquez, & Losada, 2005; Lawton & Nahemow, 1973), which was developed to explain the transactional relationship between an individual’s capacity and attributes of the environment (e.g., natural, physical, social). Gitlin and Corcoran’s (2005) Environmental Skill-Building Program is designed to help family caregivers of persons with dementia learn specific strategies to modify their living space and develop a more supportive environment so that the person with dementia will exhibit fewer disruptive behaviors and experience a slower rate of decline and dependence in instrumental and basic activities of daily living.

Appendix C. Cognition Case Examples

Case 1. Students in a 5th-Grade Classroom: Improving cognitive performance using the Multicontext Approach		
Client Description	Evaluation and Goal-setting	Occupational Therapy Intervention and Outcome
<p>The teachers and principal expressed concerns about the organizational skills of 5th graders, who, in this district, are required for the first time to manage lockers and switch classes. The class included 35 students (7 with special needs) with an average age of 10 years and had 3 teacher’s aides.</p>	<p><u>Occupational Profile:</u> The occupational therapist interviewed the principal and teachers. The teachers indicated that more than half of the students had difficulty keeping track of class materials and homework and often lost or misplaced required materials.</p> <p><u>Analysis of Occupational Performance:</u> The therapist observed the classroom and analyzed the classroom and</p>	<p><u>Intervention Approach:</u> The occupational therapist collaborated with the teacher to design a 12-session pilot program to address the identified goals and assess initial feasibility, student engagement, and response. The therapist led each weekly 42-minute session. The teacher reinforced the information between sessions.</p> <p>The program was based on the Multicontext Approach (Toglia,</p>

	<p>locker routines and the school demands placed on the students' organizational skills.</p> <p><u>Goal Setting:</u> Analysis of interviews and classroom observations indicated that disorganization of lockers, desks, and folders appeared to contribute to student's difficulties. The teachers agreed with this analysis. Goals were for students to be able to</p> <ol style="list-style-type: none"> 1. Identify at least 2 strategies for improving locker or desk organization; 2. Recognize situations in which they need to use organizational strategies; and 3. Apply self-generated organizational strategies to other school and home activities. 	<p>Johnston, Goverover, & Dain, 2010), which provides a framework to promote strategy use and metacognitive skills across different situations. Activities are systematically varied to help persons make connections across activities. The approach emphasizes anticipation of challenges and self-monitoring skills.</p> <p>During the intervention sessions, students discussed identifying "roadblocks" and challenges to staying organized in school and daily life (e.g., locker, desk, folders, backpack). Once students identified these, they generated strategies. For example, to address locker management, students were asked to develop or draw a personalized locker plan and checklist, carry it out, and then assess whether it worked for them. During the week, students made daily ratings of their locker organization. Next session they identified factors that influenced their performance and revised or generated new strategies.</p> <p>Students were encouraged to use organizational strategies in different activities (e.g., homework, backpack, binder, folder, or desk organization; organizing information on a page or worksheet). Every session focused on making connections to previous sessions.</p> <p><u>Outcome:</u> The lead teacher indicated that 80% of the students came to class prepared, with the correct materials. The majority of students rated their lockers as more organized and reported high satisfaction with the program. Students indicated that although their lockers could still become disorganized, they knew when to stop, reorganize, or make a new plan.</p>
<p align="center">Case 2. Client With Asperger's Syndrome: Addressing cognition to optimize occupational performance at school using a CO-OP and Environmental Adaptation Approach</p>		

<p>Cody, age 12 and in 6th grade, was diagnosed with Asperger's syndrome at age 8. Cody currently lives with his mother, father, and 2 siblings. He received occupational therapy through his school system and from an occupational therapist in private practice beginning in kindergarten and continuing through 3rd grade. Following 3rd grade, his occupational therapy services were discontinued, but he continued to use assistive technology to reduce the writing demands of schoolwork.</p> <p>Cody's mother requested renewed occupational therapy services for him at an outpatient facility because of her concerns with his coordination and self-image and his reported concerns regarding relationships with his peers.</p>	<p><u>Occupational Profile:</u> Cody stated that he dislikes writing by hand, cannot read his own notes, and often wastes time in school so he can do schoolwork at home on the computer. He reported having trouble concentrating and being distracted by noise and classroom activity. He described himself as bad at sports because he doesn't have good reflexes. His interests are primarily sedentary and digital.</p> <p>Cody's mother reported that he needs structure and routine and becomes upset when routines are altered. A phone interview with his teacher suggested that Cody is disorganized with his work, has trouble initiating appropriate activity, does not seek assistance, and often loses track of time.</p> <p><u>Analysis of Occupational Performance:</u> While completing the Evaluation Tool of Children's Handwriting (ETCH; Amundson, 1995), Cody exhibited problems with both legibility and speed. Cody's scores on the Self-Esteem Index (Brown & Alexander, 1991) indicated that he is most comfortable with himself and his family relationships and least comfortable with himself in relation to his peers. His scores on the Sensory Profile (Brown & Dunn, 2002) indicated difficulties with sensory seeking and sensitivity. Cody's score on the Behavior Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, Guy, & Kenworthy, 2000)[Q: not in refs list] and the BRIEF Self-Report (Guy, Isquith, & Gioia, 2004) suggested problems with inhibition, behavioral shift, emotional control, planning and organizing, and task completion. Cody reported feeling comfortable and secure in his family and discussed his difficulties easily. He reported being motivated to play sports</p>	<p><u>Intervention Approach:</u> The occupational therapy practitioner used the CO-OP approach (Polatajko & Mandich, 2004) to develop the intervention plan. In the CO-OP approach, children develop their own goals and are guided in developing and applying cognitive strategies.</p> <p>For the first month, Cody attended twice-weekly occupational therapy sessions. Cody was then seen monthly and provided with home practice and phone consultation for strategy implementation and modification. Therapy focused on the use of cognitive strategies to improve performance as well as environmental and task adaptations. Cognitive-behavioral interventions were taught to assist Cody with the specific social situations he identified as difficult; role-playing was completed in occupational therapy. The skills were then practiced with a peer. These included the problem-solving steps of</p> <ol style="list-style-type: none"> 1. Stopping and thinking before acting, 2. Identifying the problem, 3. Thinking about 2 or 3 possible solutions, 4. Considering the consequences of each action, and 5. Deciding on and implementing a strategy. <p>Cody was also taught skills of task analysis so he could begin to develop his own adaptations. By gaining control over his own behaviors, he hoped to improve his ability to engage with peers.</p> <p><u>Outcome:</u> After 6 months, Cody participated in a re-evaluation. Improvements were noted in all goal areas. Cody had begun playing soccer with neighborhood friends. His handwriting was more legible. The combination of improved legibility and the use of</p>
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	<p>and games with his peers.</p> <p><u>Goal Setting:</u> Cody, his mother, and the occupational therapist collaborated to set therapy goals. After 6 months, Cody will</p> <ol style="list-style-type: none"> 1. Independently manage the homework process (knowing what homework is required and due dates, initiating its completion, and turning it in on time); 2. Complete homework while seated at the kitchen table; 3. Write legibly during note taking and homework; 4. Sit at a desk and attend during class time; and 5. Select at least 1 peer sport to try. 	<p>technology allowed him to take notes, read them, complete his written class work, and document to his teacher what he was learning. He was better able to attend to his classroom activities using the strategies he had implemented at school. He also found that by keeping data on his performance, with his mother's help, he was able to see how much better he was doing and that motivated him to continue and practice. Cody reported that his self-esteem is better now that he believes he can learn the things he wants to learn.</p>
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Case 3. Client With Mild Stroke: Addressing cognition to advance occupational performance using a combined Problem-Solving and Task-Specific Approach

<p>Until a month ago, Martha, age 65 years, was living independently in the community with her husband. Martha had worked as a circuit judge for the previous 10 years. She has 3 children and 3 grandchildren younger than age 5. Martha had cared for her grandchildren every Saturday while her daughter worked. Martha frequently traveled for work and pleasure. One month ago, Martha fell down a flight of stairs in her home.</p> <p><u>Symptom/Complaints:</u> Since the fall, Martha has felt dizzy and fatigued and reported several functional changes. For example, it takes more effort for her to smile and make facial expressions. She reports difficulty picking up items, like her hairbrush, and holding on to them during functional tasks. Prior to her fall she enjoyed spending time with her grandchildren, but now she feels impatient and intolerant with them. During a recent work trip, Martha lost track of time while having a meal at the airport and missed her flight.</p>	<p><u>Occupational Profile:</u> The occupational therapist conducted an informal interview with Martha and her husband and concluded that Martha was aware of her deficits. Martha revealed she found situations that are out of her control to be the most difficult: "I don't like not knowing what is going to happen. I lose my cool, and that is when I make mistakes." According to Martha, and her family, these errors are new and appear to be a consequence of her stroke.</p> <p>The Canadian Occupational Performance Measure (COPM; Law et al., 2005) was used to identify Martha's priorities for treatment. The Activity Card Sort (Baum & Edwards, 2008) revealed that Martha retained only 80% of her usual activities since her stroke. Among the activities she had given up were eating in restaurants, playing golf, dancing, going to parties and picnics, and doing laundry and yard work.</p> <p><u>Analysis of Occupational Performance:</u> The occupational therapist used informal</p>	<p><u>Intervention Approach:</u> A goal-setting/problem-solving approach aims to empower the client so that the client uses a specific problem-solving framework to develop (with the occupational therapist's guidance) his or her own self-training program, which when successful acts as reinforcement for the whole process.</p> <p>Appropriate steps for problem-solving training include problem orientation, definition, and formulation; generation of alternatives; decision-making; and solution verification. Task-specific training requires task analysis and a graded approach as the client accomplishes sequential tasks. Using both training methods, Martha accomplished her goal to improve child care skills by identifying specific aspects of child care that resulted in feeling stressed and frustrated. Martha was encouraged to define the problem (e.g., "when the children yell, I feel anxious and frustrated"). She was then encouraged to formulate alternatives to reacting in a negative manner.</p>
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<p><u>Medical Evaluation and Referral to Occupational Therapy:</u> Martha's physician referred her to an imaging center for a MRI scan. The physician informed Martha that she had a stroke. Martha was referred to a neurologist, who told her she had a mild stroke, due to a clot, in her right anterior cerebral artery, damaging the middle region of her right frontal lobe. The neurologist noted that Martha had mild facial weakness and dysarthria and mild weakness in her left hand. The neurologist recommended that Martha take a couple of weeks to rest before returning to work. He also referred her to outpatient occupational therapy.</p>	<p>observation methods as Martha worked on complex everyday tasks, such as child care, to assess Martha's ability to deal with unforeseen frustrations and challenges.</p> <p>The Executive Function Performance Test (EFPT) helped determine the underlying factors that limited Martha's occupational performance (Baum et al., 2003, 2008). The EFPT results suggested that Martha required some support in planning and organizing complex tasks (e.g., paying bills). Additionally, results from the EFPT suggested Martha could use support in terms of her judgment during high-stress times. During the EFPT assessment, the occupational therapist noted Martha would get off-task if she felt challenged on test items (e.g., bill paying).</p> <p>Martha accurately predicts the environmental factors that result in her performance errors. Problematic situations for Martha are dynamic and novel, such as going to a conference or going out to lunch. Additionally, Martha has motor weakness that affects her speech, facial expressions, and ability to grasp objects.</p> <p>Based on Martha's occupational therapy evaluation, the following long-term (1 month) goals were established:</p> <ol style="list-style-type: none"> 1. Resume caring for her grandchildren with support from her husband 1 day a week; 2. Schedule all weekly meetings independently using an organizing system; 3. Complete desired functional activities using her upper extremity as an active assist; and 4. Continue with desired leisure activities through planning and engaging in trips to novel restaurants with her husband. 	<p>With practice Martha improved at self-monitoring and needed her husband's assistance less and less. With the encouragement and guidance of the occupational therapy practitioner, Martha identified her organizational problems and identified the use of a day planner as a preferred solution. Martha also developed methods that worked for her in entering and checking for information. Martha developed a program to work on her upper extremity and used her day planner to arrange a novel restaurant trip for her and her husband once per week.</p> <p><u>Outcome:</u> After 1 month of twice-weekly occupational therapy sessions, the COPM was re-administered, and Martha reported significant improvements in both her performance and satisfaction with performance associated with tasks of importance to her. She was taking care of her grandchildren (with her husband) and routinely using a planner to organize her day and to plan restaurant trips. In addition to upper-extremity exercises, Martha continued to set and meet daily goals involving use of her left upper extremity to perform routine tasks.</p> <p>Martha and the occupational therapist discussed whether the therapist could be of assistance in problem solving about return to work. Martha reported that she had not yet determined if she was going to transition back to work at a reduced schedule or retire, but she felt confident that she would be able to make the right decision.</p>
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Case 4. Client With Severe Stroke: Addressing cognition to advance occupational performance using a Task-Specific, Strategy-Training Approach		
<p>Jamie, age 55, was healthy and living independently in the community with her husband Carl prior to a left middle cerebral artery occlusion and subsequent fall. Following 6 days at the acute hospital, the acute care team documented her ADL/mobility status as maximum assist and determined that Jamie was a candidate for inpatient rehabilitation.</p>	<p><u>Occupational Profile:</u> On admission, Jamie presented with global aphasia, so an interview with Carl served to develop Jamie’s occupational profile. Carl reported that Jamie enjoyed long walks, trying new recipes, and was planning her daughter’s wedding. Carl reported that Jamie “takes pride in her appearance” and “always has a positive outlook on life.” Carl saw himself as Jamie’s primary support. He reported that Jamie became tearful when he has to assist her in feeding.</p>	<p><u>Intervention Approach:</u> Following goal identification, a task-specific strategy-training approach was chosen (Donkervoort et al., 2001), as it is focused on improving occupational performance and has been shown to promote generalization (Gillen, 2009). The intervention is aimed at improving the performance of those with apraxia by teaching them internal (e.g., verbalizing steps during task performance) or external (e.g., referring to a sequence of pictures) compensatory strategies that enable more independent functioning despite the persisting apraxia. Strategy training occurred in the context of ADLs. A task-specific errorless-completion approach (Goldenberg, Daumuller, & Hagmann, 2001; Goldenberg & Hagman, 1998) was used during mealtimes for achieving errorless completion of feeding.</p>
	<p><u>Analysis of Occupational Performance:</u> The occupational therapist administered the A-ONE (Arnadottir, 1990, 2011) instrument, which helped determine the underlying factors that limited occupational performance. Jamie required maximum assistance for self-care and mobility due to the presence of ideational apraxia (e.g., using a comb as a toothbrush, putting her sock on her hand), motor apraxia (e.g., inability to plan left-sided movements to propel her wheelchair, unable to generate motor plans for tooth brushing resulting in clumsy and awkward movements), impaired organization and sequencing (attempting to don socks after donning her shoes, attempting to get out of bed prior to removing the blanket) and impaired motor function (i.e., a flaccid right upper extremity preventing Jamie from washing her left arm or right axilla, weak right lower extremity making transfers unsafe).</p>	<p><u>Outcome:</u> Jamie spent 18 days in inpatient rehabilitation. Jamie met her grooming goal, surpassed her toileting goal, and met her feeding goal (Goals 1, 2, and 4, respectively). Although improvement was noted, Jamie did not meet her meal preparation goal (Goal 3) by discharge, as her performance still fluctuated between minimal and moderate assistance.</p>
	<p>The Assessment of Disabilities in Stroke Patients with Apraxia (vanHeugten et al., 1999, 2000) revealed that Jamie required physical assistance to initiate task performance, to execute the</p>	<p>The team and Carl decided that Jamie would be discharged home with a home health aide and occupational, speech, and physical therapy.</p>

	<p>correct sequence of action, and to correct her errors.</p> <p><u>Goal Setting:</u> Based on the evaluation, the following long-term (1 month) goals were established:</p> <ol style="list-style-type: none"> 1. Jamie will complete grooming tasks with supervision and 3 demonstration cues for object use; 2. Jamie will transfer to the toilet with minimal assist for sequencing; 3. Jamie will prepare a simple sandwich with minimal assist; and 4. Jamie will eat a sandwich with supervision. 	
<p>Case 5. Client With Severe Traumatic Brain Injury: Addressing cognition to advance occupational performance using Specific-Skill Training and an Environmental Modification Approach</p>		
<p>Chloe, age 19, had sustained a traumatic brain injury 2 years ago when she collided with a tree while skiing. At the scene she had a Glasgow Coma Scale of 8 and was intubated. Injuries included a right basilar skull fracture, bilateral subarachnoid hemorrhage, a mandibular fracture, and a fractured right wrist. Chloe was transported via medical helicopter to a Level 1 trauma center.</p> <p>Six weeks later, Chloe was transferred to a subacute rehabilitation hospital where she received occupational therapy, physical therapy, and speech and language therapy for 1 month before being discharged home. Two years post injury, Chloe has been unable to hold a job and lives at home with her mother. Chloe's most recent neuropsychological evaluation indicated significant impairments in visual and verbal memory and processing speed as well as in verbal comprehension. Deficits also were noted in executive functioning, including problem solving, and planning and organization.</p>	<p><u>Occupational Profile:</u> The occupational therapist met with Chloe and her mother to develop the occupational profile. Chloe's daily activities consist primarily of watching TV and occasionally completing simple household chores assigned by her mother. Chloe uses her smart phone to text message her mother more than 30 times a day, asking repetitive questions and for reassurance. Chloe states that she feels anxious and does not know what to do. Chloe states that the memory book that she was asked to use "made her look stupid"; however, she verbalizes that she "can't remember anything."</p> <p>Prior to her injury, Chloe was very active and was on the softball and volleyball teams at school. She also liked to cook but no longer does so because she "burns stuff." Chloe stated that she loves animals and wants to be a veterinarian.</p> <p><u>Analysis of Occupational Performance:</u> The occupational therapist administered several measures of functional cognition and observed Chloe plan, shop for, and prepare a simple meal.</p>	<p><u>Intervention Approach:</u></p> <p>Occupational therapy was provided as a weekly consultative service and was a collaboration among the therapist, Chloe, and her support staff. A compensatory approach using an electronic memory aide (Gentry, Wallace, Kvarfordt, & Lynch, 2008) was chosen, as Chloe was already comfortable with the use of her smart phone and regarded this device as socially acceptable. Chloe's staff were instructed to enter her daily schedule into the calendar of the smart phone each morning. Chloe was then cued at the completion of each task to check her calendar and determine what activity she should do next.</p> <p>When Chloe was comfortable with using the calendar function, a task management application was added to the phone. The occupational therapist worked with staff to enter step-by-step instructions for IADLs that initially required moderate verbal cueing from staff. Staff then cued Chloe to check the next step in the phone rather than helping her with tasks.</p> <p>When Chloe was comfortable</p>

<p>Chloe recently was approved to receive services through her state’s Brain Injury Medicaid Waiver program. This program provides support staff for individuals who meet specified financial and functional criteria so that individuals who have sustained a severe brain injury can remain in the community rather than be institutionalized. Chloe was approved to have support staff 8 hours per day while her mother was at work. An occupational therapy consult was ordered to provide input to the program.</p>	<p>Chloe required moderate cueing when making the grocery list and at the grocery store to proceed to the next step of the task. She required reorientation to the task twice because she stated she could not remember what she was doing. She was able to use the list, locate needed items, and pay for items appropriately, although she reported being anxious throughout the shopping trip and rechecked the list multiple times. She was able to make the sandwich without cueing but required a verbal cue to turn off the stove.</p> <p><u>Goal Setting:</u> Chloe and her mother agreed that developing strategies to manage Chloe’s memory deficits would have the largest impact on her functional status. A list of goals was established:</p> <ol style="list-style-type: none"> 1. Chloe will refer to her smart phone to determine the next activity in her day with minimal cues from staff. 2. Chloe will refer to her smart phone to determine the next step of IADL tasks with minimal cues from staff. 3. Chloe will refer to her smart phone to determine the next steps in each task in a volunteer position at local animal shelter with minimal cues from staff. 	<p>with using the smart phone for familiar tasks, the therapist worked with her and her staff to program steps for tasks undertaken as part of a volunteer job at a local animal shelter.</p> <p><u>Outcome:</u> After 6 months the Brain Injury Medicaid Waiver program hours were decreased from 8 hours per day to 4 hours per day because Chloe was now using the smart phone to guide her through IADLs. However, through the frequent repetition of task performance the same way each day, Chloe is relying less on the phone with no increase in errors.</p> <p>Text messages to her mother have decreased from 30 messages per day to 3 per day. Chloe volunteers 15 hours per week at the local animal shelter and rarely reports feeling anxious. Any new tasks need to be programmed into the smart phone and monitored for the first few weeks. Chloe has learned that for any new tasks she must rely on her smart phone.</p>
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Case 6. Client With Alzheimer’s Disease: Addressing cognition to advance occupational performance using an Task/Environmental Modification Approach

<p>Raymond, age 79, lives with his wife Dorothy in a small central Pennsylvania town. Raymond and Dorothy have lived in the same house for 42 years, where they have raised 5 children. Very few upgrades have been made to the home, so all the bedrooms and the only full bath are on the second floor (clawfoot tub only).</p> <p>The event that first led to medical evaluation occurred one year ago, when Raymond became lost when driving to a neighboring</p>	<p><u>Occupational Profile:</u> Dorothy responds to most of the questions at the initial interview, with Raymond responding only if specifically asked. Dorothy reports that Raymond is requiring assistance for most self-care tasks, with the exception of feeding and toileting, in which he is independent.</p> <p>Raymond owned his own furniture repair business before retiring and until about 3 months ago was able to make very simple</p>	<p><u>Intervention Approach:</u> The intervention approach was based on the Person–Environment–Occupation–Performance model and involved teaching Dorothy and Raymond to use environmental and verbal cueing, plus task simplification during self-care, leisure, and work activities, and to provide a calming atmosphere.</p> <p>The occupational therapist proposed 6 visits per month (twice weekly for 2 weeks; once</p>
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<p>town and ended up 150 miles beyond his intended destination. A state trooper helped him when his car ran out of gas, and Raymond was returned home to a worried Dorothy. Subsequently, Raymond was diagnosed with Alzheimer’s disease, and over the following year his symptoms have progressed, triggering a referral to occupational therapy by Raymond’s internist.</p>	<p>repairs around the house or in his workshop. Dorothy does not feel it is currently safe for him to work unsupervised. Raymond no longer drives or does home chores and is angry about these losses. Dorothy says he is easily angered and bored. She is concerned that he will “sit around the house all day and do nothing.”</p> <p>Dorothy wants to help her husband and has given up activities she enjoys to do so. The occupational therapist is concerned about role overload for Dorothy.</p> <p><u>Analysis of Occupational Performance:</u> Direct observation of Raymond in his workshop and the Cognitive Performance Test (Burns, 1991)[Q: cite in the refs] provided findings for symptoms consistent with the moderate stage of Alzheimer’s disease and difficulties completing detailed tasks. This score was consistent with Dorothy’s report of Raymond’s need for assistance with most IADLs and supervision and setup for ADLs. The occupational therapist also administered the</p> <ol style="list-style-type: none"> 1. <i>Geriatric Depression Scale</i> (Sheikh & Yesavage, 1986).[Q: cite in the refs] Raymond’s score on this measure indicated that he should visit his physician for diagnostic testing for possible major depressive disorder. Dorothy’s score was within the normal range. 2. <i>Safety Assessment of Function and the Environment for Rehabilitation–Health Outcome Measurement and Evaluation (SAFER–Home), Version 3</i> (Chui et al., 2006). Using this tool, the therapist determined that overall safety issues were moderate and were primarily isolated to lighting and bathroom issues. 3. <i>Task Management Strategy Index</i> (TMSI: Gitlin et al., 2002). 	<p>weekly for 2 weeks) followed by a re-evaluation. In collaboration with Dorothy, the therapist worked with Raymond to determine the types of cuing that work best to support his occupational performance. The overall approach was to support his retained procedural memory with cues (e.g., lists or other types of instructions, placement of objects, verbal instruction).</p> <p>Interventions with empirical evidence were implemented (Corcoran, 2006; Gillespie et al., 2009;[Q: cite both in the refs] Gitlin & Corcoran, 2005) and included</p> <ol style="list-style-type: none"> 1. <i>Environmental Cuing</i>-- Modifying objects so their use is unambiguous (may require use of labels), eliminating power tools or other items that could cause injury, reducing the number of items available (clutter), and improved lighting for safety. In addition, suggestions were made regarding specific adaptive equipment for bathing and a monitoring system to provide distant supervision. Raymond’s favorite music was used to create a calming atmosphere. 2. <i>Verbal Cuing</i>--To avoid conflict, Dorothy was taught to use implicit guiding by setting up the environment and making appropriate activity choices. When explicit guidance is needed, Dorothy was taught to provide instructions one step at a time in a neutral voice. Dorothy also decided to make or purchase audio- or video-recordings with explicit instructions for wooden assembly kits. Dorothy was shown how to provide tactile guidance. 3. <i>Task Simplification</i>--Dorothy and Raymond learned to choose simple activities or to modify existing activities so they involve few steps and reduced opportunities for errors.
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	<p>This tool was administered to Dorothy to assess her use of task simplification and objects modification. Scores suggested that training was needed in environmental and verbal cuing and guidance.</p> <p><u>Goal Setting:</u> Based on Raymond’s occupational profile, the analysis of occupational performance, and consultation with Dorothy, the following long-term (1 month) goals were established:</p> <ol style="list-style-type: none"> 1. Through use of environmental and verbal cuing, Raymond will <ul style="list-style-type: none"> • Dress and bathe independently on 5 of 7 days. • Complete simple home chores with distant supervision. • Assemble simple wooden kits with distant supervision. 2. Engage in desired activities, with agitated outbursts reduced to no more than 1 per week. 	<p><u>Outcome:</u> At the 4-week re-evaluation visit, the occupational therapist observed Raymond during a leisure activity in the workshop, interviewed the couple, and re-administered the SAFER–HOME and the TMSI. Scores improved on the standardized tests, and the couple reported that all goals were met. The therapist developed a discharge plan that included identification of behaviors that should trigger a request for additional occupational therapy (e.g., reduced performance in ADLs or leisure activities, daily agitation, increased risk of or actual falls or injury).</p>
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Case 7. Client With Schizophrenia: Addressing cognition to optimize occupational performance based on the Cognitive Disabilities Model

<p>George, age 62, resides in a group home that has 24-hour staff supervision. George was diagnosed with schizophrenia, paranoid type at age 21. He works at a local furniture workshop but is having difficulty with attendance, staying on task, and some aspects of job satisfaction. George was referred to occupational therapy to evaluate his abilities, goals, and employment expectations and also the job site.</p>	<p><u>Occupational Profile:</u> George described two key areas of challenge at work: (1) work performance limitations and (2) strained interactions with his supervisor. George could explain most of the steps of his upholstery job, but he had difficulties with memory and sequencing when demonstrating the tasks. Additionally he reported problems with task transitions and indicated that he is frequently expected to shift to a new task before achieving mastery of the prior task.</p> <p>George reported that he likes his job but that his boss is often angry with him and he does not know why. George’s boss appeared equally frustrated and confused. For example, the boss appeared puzzled by George’s</p>	<p><u>Intervention Approach:</u> The occupational therapist met with George’s supervisor to provide education about schizophrenia to help him better understand George’s experiences and needs. The supervisor was very appreciative of this information, which heightened his receptiveness of the therapist’s recommendations. The therapist also met jointly with George and his boss to explain the results of the evaluation process, review George’s work-related goals, and discuss recommended types and amount of assistance. Together they decided to create weekly schedule in which George spends each day doing one specific task in the upholstery department rather than multiple tasks in the same day.</p>
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	<p>daily questions about familiar tasks. In private, George’s boss admitted that he thought George was lazy.</p> <p><u>Analysis of Occupational Performance:</u> Using clinical observations within the work setting, an analysis of cognitive performance actions with the Allen level and mode correlations (Allen et al., 1992) was completed for 3 of George’s job activities (e.g., measuring, cutting, and gluing fabric) on 3 different days. George’s scores on the Allen Cognitive Level Battery ranged between 4.4–4.6, suggesting that “scaffolding” would help George optimize his work performance. At this cognitive level and mode range, assistance for setup and organization, sequencing, and cues as needed is recommended.</p> <p><u>Goal Setting:</u> The following long-term (3 month) goals were established:</p> <ol style="list-style-type: none"> 1. George will demonstrate an increase of 25% in his productivity, with assistance for setup, the use of pictures outlining the steps of each task, and one full demonstration of each task and object use prior to the supervisor leaving George to complete the task. 2. George will increase attendance from 50% to 90% of the time. 3. George will check in at the end of each shift on a daily basis to discuss with his supervisor what works and what might be more helpful in order for George to meet his vocational goals. 4. George will report a 75% increase in job satisfaction by the end of 3 months. 	<p>The occupational therapist developed pictorial sequencing booklets for each task that George was to complete. The supervisor agreed to provide the organizational setup for the day’s tasks and one full demonstration of the directions at the start of each shift. He would then observe George fully complete what was demonstrated and provide any needed additional verbal cues. These external cues (e.g., setup, demonstration, referring to a sequence of pictures) provided the compensatory strategies necessary to enable George to function more independently and productively at work.</p> <p><u>Outcome:</u></p> <ul style="list-style-type: none"> • <i>Goal 1:</i> George demonstrated an increase of 40% in his productivity rate. • <i>Goal 2:</i> George demonstrated an increase of 95% in his attendance at work. • <i>Goal 3:</i> George and his supervisor met at the end of each workday 100% of the time and identified and addressed all issues that came up within their sessions. • <i>Goal 4:</i> George reported an increase in his job satisfaction by 80%.
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Note. ADL = activities of daily living; MRI = magnetic resonance imaging; IADLs = instrumental activities of daily living.

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