



# Occupation-focused intervention approaches for children and youth

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## Abstract

In occupational therapy, there is a growing consensus that enabling occupation in everyday contexts is our core business. Declaring the enablement of occupation as our core business calls upon us to examine our practice with that lens, it calls upon us to consider the extent to which our interventions are occupation-focused.

*Objective:* In this paper, we provide an overview of occupation-focused approaches that are current in the pediatric occupational therapy literature, and review the evidence for their adoption.

*Methods:* A comprehensive review of indexed journal articles published since 2003 was undertaken to identify occupation-focused intervention approaches currently being researched by occupational therapists working with children with a wide variety of occupational challenges.

*Results:* Out of 36 articles investigating the effectiveness of specific intervention approaches, 19 articles were found to describe occupation-focused approaches. Two basic approaches were apparent, both task-focused: direct skill teaching approaches and the guided discovery approach, Cognitive Orientation to daily Occupational Performance (CO-OP). The main elements distinguishing these two categories are presented, alongside a selection of articles.

*Conclusions:* The emerging evidence from intervention studies supports a shift to task-specific, occupation-focused intervention approaches, as they show great promise.



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## Background

### Occupational therapy today

In occupational therapy, the turn of the last century saw the emergence, around the world, of position statements, articles, books and practice guidelines reaffirming the centrality of the concept of occupation to our profession, and declaring that enabling occupation in everyday living is our core business (Law, Baum, & Baptiste, 2002; Rodger, 2010; Townsend & Polatajko, 2013). Indeed, the Canadian Association of Occupational Therapists' guidelines define occupational therapy as «the art and science of enabling occupational performance in everyday living, through occupation; of enabling people to perform the occupations that foster health and well-being [...]» (Polatajko, et al., 2013, p. 27).

Declaring the enablement of occupation as our core business calls upon us to examine our practice from that perspective; it calls upon us to determine which of our interventions are occupation-focused, and which are the most effective and efficient at enabling occupation. This is particularly important in the area of pediatrics, where we are often focused on development, rather than occupational performance per se, and our interventions are designed to promote normal development of the domains that subtend development, e.g., gross and fine motor development or sensory-motor development. It is the purpose of this paper to do just that; to examine occupational therapy intervention approaches for children and youth from the perspective of occupational enablement. Specifically, in this paper we will describe what occupation-focused interventions are, contrasting them to traditional approaches; present the evidence supporting their adoption, and then provide an overview of the occupation-focused approaches that are current in the occupational therapy literature.

### Occupational therapy and children

Occupational challenges can occur at any age and stages of life. Throughout infancy, childhood and

adolescence, children typically progress through numerous developmental stages and acquire motor, cognitive, emotional, and social skills and abilities. All the while they develop an occupational repertoire; they become competent at a myriad of occupations that support and are supported by their growth and development, a repertoire that will continue to evolve throughout their lives. For many children, this development seems simply to unfold. However, for some children, developing an occupational repertoire that is typical of their age peers is challenging (Davis & Polatajko, 2006; Humphry & Wakeford, 2006).

The International Classification of Functioning (ICF) – Children and Youth (World Health Organization, 2007) identifies a large number of personal factors, such as disorders or medical conditions, and environmental factors, such as the lack of stimulating environments or opportunities, that alone, or in combination, can challenge life participation. In a similar fashion, our own occupational therapy models of occupational performance and engagement (Polatajko et al., 2013) indicate that personal and environmental factors, alone and in combination, can contribute to the challenges experienced by children in the development of an occupational repertoire, the grist of participation. However, occupational models add an additional potentially contributing factor, occupation. Our models make explicit that occupations themselves can present challenges in developing an occupational repertoire and the participation it supports. Accordingly, occupational therapy interventions have been developed that address one or more aspects of occupational performance: person, occupation, or environment.

### Intervention approaches: A shift to occupation-focused approaches

The ultimate objective of occupational therapy with children and youth is to enable occupational performance. In this new millennium, therapists have available to them a large array of intervention approaches designed to

meet the various needs of their clients. In choosing the intervention that is best in a particular situation, therapists take into account a variety of environmental and child-related factors, such as age, goals, temperament or identified difficulties (Copley, et al., 2008). Frequently, numerous options are available, so choosing can be difficult. The literature indicates that therapists frequently deal with this by not using intervention approaches in their purest form, but instead by using a combination of techniques and modalities borrowed from different approaches (Berry & Ryan, 2002; Copley, Nelson, Turpin, Underwood and Flannigan, 2008). While such an eclectic approach seems pragmatic, it begs the evidence question. In this era of evidence-based practice, an important additional consideration must be the evidence, both the empirical evidence and the theoretical evidence; the latter being particularly important when the empirical evidence does not exist – which is frequently the case in occupational therapy, most especially for eclectic approaches.

In pediatric occupational therapy there are two broad theoretical perspectives that govern our approach to enabling occupational performance: deficit-focused and occupation-focused. In the former, the focus is on the child and on reducing or minimizing the impairments that challenge the child's development of occupational competence. In the latter, the focus is on the performance and the barriers and supports to that performance. This classification is based on the primary, observable, content of the intervention which in the former may comprise activities that address performance components, such as balance or co-ordination activities to prepare for riding a bicycle, while in the latter bicycle riding would be addressed directly.

Intervention approaches classified in the deficit-focused category are mostly approaches that were developed in the 1960s and 1970s, when the occupational therapy profession was being criticized by the medical community for lacking a solid scientific foundation (Kielhofner, 2009).



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During those times, medicine was heavily influenced by a reductionist scientific approach that focused on understanding diseases and illnesses by understanding the inner mechanisms of body structures and functions. Medical interventions focused on fixing, replacing or adjusting malfunctioning, deficient or broken body parts and structures, with the assumption that, once fixed, well-being and health would return (Kielhofner, 2009). The essential underlying theoretical assumption of such deficit-focused approaches is that the reduc-

tion of specific deficits will lead to improved occupational performance and occupational development, even though it is not the focus of the intervention. An example, from the recent literature is hippotherapy, an intervention approach using horseback riding as a therapeutic modality, (e.g. Shurtleff, Standeven, & Engsber, 2009; Snider, Korner-Bitensky, Kammann, Warner, & Saleh, 2007). While horseback riding is an occupation performed by many individuals, sometimes as leisure or even as a productive occupation, in this context it

is used not to teach the child that skill but as a therapeutic activity to address the impairments consistent with cerebral palsy, i.e. to promote righting and balance reactions, mobilize hip joints, the pelvis and the spine, and to normalize muscle tone (Snider et al., 2007). Neurodevelopmental Therapy (Bobath & Bobath 1984) and Ayre's Sensory Integration Therapy (1974) are other examples of deficit-oriented intervention approaches.

In contrast, the underlying theoretical assumption of occupation-focused intervention approaches is that improved occupational performance and occupational competence necessarily starts with learning to perform the targeted occupation. The basic assumptions of these approaches are derived from the learning literature. As Eliasson (2005) wrote, «you learn what you practice» (p. 46).

Occupation-focused approaches were developed more recently and have emerged alongside the evolution of dynamic systems theories. Dynamic systems theories have had a broad influence on many disciplines over the last 30 years, including physics, biology, and psychology (Thelen & Smith, 2006). With regards to human actions and behaviours, dynamic systems theories propose that human actions are self-organizing, that they result from the interaction between the person and the constraints imposed by his or her environment while actions are being performed. Accordingly, performance cannot be understood by simply considering the contribution of individual body structures and functions; performance is understood when an individual is observed in action, within a specific context (Kielhofner, 2009). In occupational therapy, dynamic systems theories have had a considerable influence on theoretical orientations, and eventually intervention approaches, leading to occupation-focused intervention approaches. Contrasting the example of a deficit-focused approach to intervention described above for children with cerebral palsy, the reasoning underlying the choice of activities for an occupation-focused intervention approach would be that cerebral palsy cannot

be fixed. Accordingly, and as recommended in the literature, the goal of the intervention would be to help the person be as independent as possible (National Institute of Neurological Disorders and Stroke, 2013).

Occupation-focused intervention approaches can further be divided into two general categories: approaches striving for occupational performance and development through enabling learning and skill acquisition, and those targeting the same objectives through adapting the occupation or environment within which performance occurs.

With the emergence of occupation-focused intervention approaches, there has also been an emergence of a literature on the relative effectiveness of deficit-focused versus occupation-focused interventions. Sugden (2003) examined the shift in intervention approaches from deficit-focused (he used the term process-oriented) to occupation-focused (he used the term task-oriented) for children with motor-based performance problems. He concluded that while most approaches remain untested, the evidence suggests that the deficit-focused approaches are «at best, no better than other approaches that are less labor intensive» (p. 469), and that occupation-focused approaches «report the highest effects» (p. 469). Similarly, in a review of intervention outcomes for children experiencing difficulty with processing and integrating sensory information, Polatajko and Cantin (2010) concluded that the effectiveness literature continues to be plagued with insufficient rigorous examination of intervention approaches; that «taken together, the results from the impairment-oriented [deficit-focused] studies must be considered inconclusive» while, «it can be concluded that the evidence in support of performance-oriented [occupation-focused] approaches is very encouraging» (p. 428). Most recently, a systematic review of the Developmental Coordination Disorder literature by Blank and colleagues (2012) also concluded that the evidence supported the use of occupation-focused [task-oriented] approaches.

Emerging neuroscience also supports intervention approaches focused on direct skill acquisition (Carey, Polatajko, Tabor Connor, & Baum 2012). There is now clear evidence from animal studies and fMRI studies with humans post-stroke that task-specific motor training is associated with functional recovery, as are motivation, an enriched environment, active participation and functional demand on the system. Further, evidence suggests that to promote learning, synonymous with neural plasticity, interventions should be explicit, task-specific, and goal-driven; they should be centred on tasks that have real world relevance, involve active-problem solving, be responsive to environmental demands, provide opportunities for variation and practice, and are challenging to the individual.

### Identifying current occupation-focused intervention approaches

A comprehensive review of indexed journal articles referenced in OTDbase, Medline and CINAHL and published in the last decade (since 2003) was undertaken to identify occupation-focused intervention approaches currently being researched by occupational therapists working with children with a wide variety of occupational challenges. The generic keywords used to search computerized indexing databases were children, treatment, intervention, and occupational therapy. Articles presenting the results of effectiveness studies and providing details about the intervention approach researched were examined. Systematic and comprehensive review articles discussing the effectiveness of specific intervention approaches were perused to ensure that the approaches presented had been included in this article. This strategy yielded an initial 160 articles. Next, a two-step process was undertaken to generate an overview of the current occupation-focused intervention approaches.

First, the articles were examined to determine if they described studies exploring the effectiveness of specific intervention approaches. This yielded 36 articles. Next, the interventions

described in these 36 articles were examined to determine if the intervention under study was deficit-focused or occupation-focused, and if the results indicated that the intervention was effective. In all 19 articles were found to describe effective occupation-focused approaches, i.e. interventions directly addressing skills acquisition and learning, and reporting positive results for skill acquisition. Data were extracted from these articles to identify current occupation-focused intervention approaches.

### Current occupation-focused intervention approaches

Occupation-focused intervention approaches whose content emphasize skill acquisition and learning are presented here. The articles led to the identification of eleven occupation-focused approaches addressing a number of specific skills, including, but not limited to, play skills, community living and handwriting. For each of the approaches, the objective of the intervention was occupational performance and occupational development, and the sessions involved directly addressing the targeted occupations. Two basic approaches to skill acquisitions and learning were apparent: direct skill teaching and guided discovery. The main elements distinguishing these two categories are presented below, alongside a selection of articles that have investigated the effectiveness of occupation-focused intervention approaches.

#### Direct skill teaching

Intervention approaches whose clinical activities emphasize learning through direct skill teaching recognize the importance of giving children explicit information about the occupation to be performed. In the context of learning, instructions providing children with an initial idea of how movements, actions and tasks making up an occupation should be performed, are given verbally or through modeling (Schmidt & Lee, 2011). With children, verbal instructions also serve to focus their attention to the essential elements of a movement, action or task. Practice, part or whole, is utilized, and occupa-

tions are broken down into tasks, actions or movements to facilitate learning (Schmidt & Lee, 2011).

Another variant of direct skill teaching is modeling how a particular movement, action or task should be performed, implying that there is an expert way to perform a given occupation (Schmidt & Lee, 2011). When appropriate and relevant, variability in practice content and contexts is introduced to ensure that the occupation can be performed under varied environmental conditions.

Throughout, feedback is given. Typically, knowledge of result and knowledge of performance is provided (Schmidt & Lee, 2011), and children are encouraged to use such feedback to self-reflect on their performance and correct their errors.

Numerous direct skill teaching approaches to intervention are being researched by occupational therapists. This comprehensive review revealed eleven articles. The most common ones are presented here, grouped according to the skill being taught.

## Teaching play skills

Three articles investigating the effectiveness of intervention approaches using direct skill teaching principles to enable the occupation of play in children with developmental delays or disorders were found (Lantz, Nelson & Loftin, 2004; Stagnitti, 2012; Wilkes, Cordier, Bundy, Docking, & Munro, 2011). One example is «Learn to play», a program designed to improve children's ability to self-initiate play and develop pretend play skills so that they can fully engage in the occupation of play (Stagnitti, 2012). The intervention approach focuses on particular tasks and actions that make-up the occupation of play, such as sequences of play actions, object substitutions, the stories in the play, doll/teddy play, social interaction and role play. During typical intervention sessions, a given play activity is modelled by the therapist, and the child is encouraged to imitate the play activity. Eventually, slight variations are applied to the play activity (Stagnitti, 2012).

Wilkes and colleagues (2011) developed an intervention aimed at

improving the play skills of children with attention deficit hyperactivity disorder. Similar to the «Learn to play» program, this intervention approach also considers the motivation of the child as crucial to its effectiveness, as well as modelling and repetition. During typical intervention sessions, children self-reflect on their performance after watching themselves on video, or therapists provide children with feedback and model desired skills in the playroom. During play sessions, children are supported in their use of social play skills.

## Teaching handwriting

Six of the direct skill teaching intervention studies targeted handwriting, one of the most common reasons for referral of children to occupational therapy (Hoy, Eagan & Feder, 2011). Denton and colleagues (2006) compared the effectiveness of direct skill teaching to a deficit-focused intervention approach on handwriting in school-age children with handwriting difficulties but no other identified delays or disorders. Practice opportunities, randomized practice schedules, variability in practice content and contexts, targeted feedback including knowledge of result and knowledge of process, as well as self-reflection and error correction were part of the intervention protocol. Their results suggest that direct-skill teaching was more effective than the deficit-focused approach. Zwicker and Hadwin (2009) and Weintraub and colleagues (2009) also reported on the effectiveness of an intervention approach using direct skill teaching. Here again, elements similar to those described in Denton's intervention approach were integrated in the intervention sessions. For example, Zwicker (2009) reports that a typical intervention session included modeling, imitation, practice, discussion and self-evaluation of performance.

Among the articles reporting on a direct skill teaching approach to handwriting some do so in combination with deficit-focused approaches, arguing that handwriting is a complex skill involving many processes, and intervention should target the many processes involved (Feder, Racine &

Majnemer, 2008; Peterson & Nelson, 2003). For example, Peterson and Nelson (2003) combined deficit-focused and occupation-focused intervention approaches, including clinical activities using direct skill teaching as well as biomechanical and sensorimotor approaches. A survey of Canadian occupational therapists suggests that such an approach to teaching handwriting is fairly common in occupational therapy (Feder et al., 2000). Nevertheless, a comprehensive review of intervention approaches targeting handwriting by Hoy and colleagues (2011) reveals mixed results with regards to the effectiveness of integrating multiple theoretical perspectives. It would seem that the one element that seems important to the effectiveness of the interventions was the amount of handwriting practice included during intervention sessions, supporting the use of occupation-focused approaches.

## Teaching community living skills

A third skill area addressed in the direct skill teaching literature is community living for children with intellectual or developmental disabilities. The primary goal of intervention approaches teaching community living skills is to enable children to acquire the skills to engage in particular activities and occupations, such as using public transportation, banking, or shopping. Different approaches to direct skill teaching are reported (e.g. Michie, Lindsay & Smith, 1998; Morse & Schuster, 2000), each having a different slant on the importance of underlying elements related to direct skill teaching, such as the use of feedback (e.g. timing of feedback, type of feedback), the use of positive reinforcements, the context of practice (classrooms, in vivo, virtual environments), or the use of instructional techniques (verbal instruction, demonstration, role play, group exercises, games or discussions). Activity analysis is essential to most intervention approaches to identify critical and non-critical components to be specifically taught during intervention sessions. Drysdale and colleagues (2008) examined the effectiveness of direct skill teaching to train clients with

intellectual disabilities on a variety of community living skills. Their results demonstrated that, when compared to a control group, the group who had received the intervention approach, which included verbal instruction, contextual practice, modelling and discussion, was significantly more skilled after the intervention for some community living skills (e.g. shopping) than the control group.

### Guided discovery

Guided discovery is an approach to skill teaching that actively engages the learner in discovering solutions rather than providing the learner with the required solution. The basic premise of guided discovery is that meaningful learning occurs when the learner strives to make sense of the presented material by selecting relevant incoming information, organizing it into a coherent structure, and integrating it with other organized knowledge (Mayer, 2004). When considering the role of feedback in skill acquisition and learning, guided discovery falls somewhere between direct skills teaching, during which knowledge of result and of process is offered to the learner (Schmidt & Lee, 2011), and discovery learning, during which the learner does not receive any feedback from the instructor. During guided discovery, feedback takes the form of verbal guidance and questions, the purpose of which are to guide learners to problem-solve through their difficulties and find their own solutions.

Eight of the articles describing occupation-focused interventions used guided discovery; all were in relation to the Cognitive Orientation to daily Occupational Performance approach (CO-OP) (Polatajko & Mandich, 2004).

### Cognitive orientation to daily occupational performance

The Cognitive Orientation to Daily Occupational Performance (CO-OP) (Polatajko & Mandich, 2004) is an occupation-focused intervention approach used to enable children to overcome their difficulties and learn to perform their chosen occupations. The approach was derived from a combination of cognitive behavioural

principles and motor learning theory, and addresses four goals: skill acquisition, cognitive strategy use, generalization and transfer. Some of the key components of the approach include client-centred goal setting, cognitive strategy use, guided discovery and dynamic performance analysis. During a typical intervention session, therapists guide children in using a global problem-solving strategy (goal-plan-do-check) to resolve their difficulties and discover specific strategies related to the chosen occupations. Enabling generalization and transfer to other setting and occupations is consciously integrated throughout the intervention sessions (Polatajko & Mandich, 2004).

The CO-OP approach is one of the most studied occupation-focused intervention approaches; numerous reviews have suggested that it is particularly successful among approaches focused on skill acquisition (Chen et al., 2003). Recent literature reports on the effectiveness of the CO-OP approach with children with Developmental Coordination Disorder (DCD) ages seven to twelve (Polatajko & Mandich, 2004), younger DCD children ages five to seven (Taylor, Fayed, & Mandich, 2007; Ward & Rodger, 2004), children with Asperger's (Rodger, Ireland, & Vun, 2008; Rodger, Pham & Mitchell, 2009; Rodger & Vishram, 2010), children with pervasive developmental disorder (Phelan, Steinke, & Mandich, 2009) and children with acquired brain injury (Missiuna et al., 2010).

### Summary

The reaffirmation at the turn of the last century of the centrality of occupation to our discipline and the declaration of occupational enablement as our core business has heralded a shift to occupation-focused interventions. In occupational therapy with children, this shift has seen the emergence of intervention approaches focused directly on the acquisition of occupational skills and the development of occupational repertoires that support participation. The emerging evidence from intervention studies and emerging neuroscience supports such a

shift, as interventions focused directly on skill acquisition have shown great promise. □

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