EXECUTIVE FUNCTIONING IN CHILDREN AND YOUTH: DEVELOPMENT OF OCCUPATIONAL THERAPY COMPETENCIES

by

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Abstract

**Purpose:** This thesis focuses on the development of occupational therapy competencies to enable executive occupational performance with school-aged children and youth. **Methods:** Three studies were structured according to the knowledge inquiry, synthesis, and product stages of the Knowledge To Action cycle (Graham et al., 2006). A scoping review in Phase One explored how executive functioning is described in the occupational therapy literature. In Phase Two, a qualitative study was conducted to determine how occupational therapists who have worked with children and youth perceive executive functioning to be understood and addressed. Phase Three used established competency development processes to produce an occupational therapy competency model and framework for enabling executive occupational performance.

**Results:** Although there is little consensus on how executive functioning is understood, literature reviewed in Phase One demonstrated its pervasive effect on performance of complex, novel, and goal-directed occupations. Emerging themes suggest that assessment requires occupational, dynamic, and performance-based approaches, with interventions rooted in metacognitive frameworks. The Phase Two qualitative study suggested that, although there are challenges to being able to “see” executive functioning, it is necessary to explicitly and systematically consider executive functioning during clinical reasoning. Learning to “see” through the executive functioning lens is a complex process. The competency framework development process utilized in Phase Three yielded the Competencies in Context Model. Responding to series of contextual challenges related to system, client, and occupational therapist factors, professional assessment, intervention,
knowledge acquisition, and knowledge translation competencies are used to organize 16 specific occupational therapy practice competencies.

**Conclusion:** Points of tension within the literature and the field have implications for occupational therapy curricula, research, practice, and professional development. Executive functioning issues have wide reaching effects on occupational performance of children and youth that have not been adequately recognized or explored in the occupational therapy literature. The competency model and framework developed through this research make a substantive contribution to the field in beginning to redress the dearth of occupational therapy-specific models, resources, and tools designed to support occupational therapists’ acquisition or implementation of the executive functioning perspective.

**Key words:** executive occupational performance, scoping review, participation analysis, qualitative research
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While this thesis could not have been possible without the support of so many, any inadequacies or errors in the thesis remain mine alone.

*I can no other answer make, but thanks, and thanks, and ever thanks.*

(Sebastian, Shakespeare’s *Twelfth Night*, Act 3, Scene 3)
“Maslow’s Hammer”

I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail.

(Maslow, 1969, p. 15)
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Chapter 1

Introduction

Background: Contextualizing the Research Problem

Recognizing the Role of Executive Functioning

Recognition of executive functioning’s importance is reflected in its recent surge in education and psychology literature. Executive functioning in children and adolescents has traditionally been examined in the context of traumatic brain injuries. Recent literature, however, has looked to executive functioning more extensively, identifying it as a significant issue broadly related to difficulties doing tasks that require planning, organization, initiation, and monitoring for children and adolescents with typical and atypical developmental trajectories (P. Dawson & Guare, 2010; Kaufman, 2010; McCloskey, Perkins, & Van Divner, 2009; Meltzer, 2007b).

Although there is a plethora of research on discrete components of executive functioning within cognitive psychology and neuroscience, neuropsychology, developmental and clinical psychology, and education, there have not been developmental models of executive functioning until recently. McCloskey’s *Holarchical Model of Executive Functions* (McCloskey, 2004, as cited in McCloskey, 2009) offers one of the first attempts at articulating the complexity of executive functioning and the interplay of all factors into a singular conceptual model. His model represents the multi-
facet and interdependent nature of executive functioning through the use of five tiers (see Appendix A). The lower three target self-control, including the areas of self-activation, self-regulation, self-realization, and self-determination. These tiers account for how an individual navigates daily life. The two higher tiers, labelled self-generation and trans-self integration, speak to an individual’s sense of meaning and purpose as well as source of direction. According to the model, executive functioning has an impact on how a person controls cognitions, perceptions, emotions, and actions internally and interpersonally, as well as in response to environmental factors and culturally-constructed symbol systems like language and math. Certain elements of executive functioning, like emotion and cognition, begin to develop in toddlers, whereas other aspects such as self-determination and self-realization evolve more towards adolescence.

The increased consideration of how executive functioning develops and how its development fits with environmental expectations creates new opportunities for understanding performance issues in children and youth. Understanding executive functioning within a developmental frame underscores the role of experience and contextual variables that can affect development in positive as well as adverse ways (Holmes Bernstein & Waber, 2007). For younger children, it is developmentally typical to have weak executive functioning, so environmental supports in the forms of teachers and parents are necessary to shore up those weaknesses by structuring activities and expectations accordingly. If a child does not have those supports, skill development will be impeded (P. Dawson & Guare, 2010).
With support for less developed executive functioning, children can take the road that “leads to opportunity, confidence, and eventually the fulfillment of their personal and vocational potential”; however, without effective intervention, they will be relegated to the “road of frustration, unfulfilled promise, and an increased probability of social and academic failure” (Cox, 2007, p. xi). Executive functioning problems can reflect a primary disorder, but they can also emerge as a secondary consequence of another primary disorder. As such, executive functioning issues are evident across the most prevalent mental health problems of childhood—Attention Deficit Hyperactivity Disorder (ADHD), Learning Disorder, Anxiety Disorder, and Autism Spectrum Disorder—which are estimated to affect 1 in 5 children and youth (Altarac & Saroha, 2007; Children's Mental Health Ontario, 2007; Faraone, Sergeant, Gillberg, & Biederman, 2003). The importance of detecting and effectively addressing executive functioning issues is pivotal. Indeed, when these elementary and high school students do not receive intervention to address the executive functioning issues fundamental to their difficulties with engaging in important and necessary tasks, they are at high risk for negative secondary consequences, including lifelong reduction in income earning potential, increased likelihood to access government income support programs, increased risk of dropping out of high school, and increased risk of involvement with the criminal justice system (Crawford, 2002; Schultz, 2003).

Highly developed executive functioning has become increasingly relevant to successful performance in today’s society, where proficient executive functioning has
taken on increased importance. Metzler (2007a) comments on the incongruity between expectations to have high levels of executive functioning and opportunities to develop those skills:

...classroom instruction generally focuses on the content, or the what, rather than the process, or the how, of learning and does not systematically address metacognitive strategies that teach students to think about how they think and learn. As a result, a large gap separates the skills and strategies taught in school from the executive function processes needed for success there and in the workplace. Both these settings now require individuals to take greater responsibility for their independent learning and to organize and integrate an ever-changing body of information that is available through the Internet and other web-based media (p. xi-xii).

Moreover, these demands on executive functioning increase significantly for children once they start in the elementary grades, when teachers begin to expect students to engage in extensive reading and writing tasks in addition to more intensive projects and tasks that require simultaneous synthesis of multiple cognitive processes, like studying. Consequently, executive functioning difficulties make it difficult for children and youth to be successful at school and can lead to a life-long pattern of academic failure or underachievement (Kaufman, 2010; McCloskey et al., 2009; Meltzer, 2007b).

**Executive Functioning, Occupational Therapy, and Competence**

Despite the prevalence, prominence, and impact of executive functioning issues, the most common reason for referral to occupational therapy services for children is handwriting problems (Case-Smith, 2002; Hoy, Egan, & Feder, 2011). Traditional fine motor, gross motor, and visual perceptual performance component interventions focus primarily on elementary school children (Case-Smith & Archer, 2008) acquiring typical
fine motor and sensory integrative milestones (Cahill, 2006). From the occupational therapy perspective, it seems that executive functioning is largely unobserved and unaddressed in the school system. Students who live with executive functioning issues tend to receive occupational therapy services only if they are perceived to have sensory and/or motor issues, and those services are geared towards the amelioration of sensory and motor deficits (Cahill, 2006). The children who have cognitive, psychosocial, emotional, and behavioural disturbances, many of which are contingent upon executive functioning, are generally not identified as candidates for occupational therapy (Schultz, 2003).

Difficulty drawing on broader practice frameworks within school-based practice “has been identified as a ‘within the profession’ barrier to effectively servicing these students in schools” (Chandler, 2007, pp. CE-1). Indeed, occupational therapists have the knowledge base but lack conceptual and practice models to follow. Moreover, they have little preservice training about students who are experiencing emotional or behavioural difficulties that often flow from non-accommodated executive functioning issues, and have few options for continuing occupational therapy education that can shore up their skills outside of motor, sensory, or visual perceptual issues (Block & Chandler, 2005; Chandler, 2007; Schultz, 2003). There are no occupational therapy continuing education opportunities specifically targeting executive functioning in children and youth. Knowledge and awareness of executive functioning generally associated with traumatic or acquired brain injuries in adults have not been commonly extended to children and
youth with physical, neurological, learning, attention, or self-regulation issues, with occupational therapists lacking a context for application.

If occupational therapists are to be able effectively to address executive functioning issues impacting occupational performance, it is essential to identify which knowledge, skills, and abilities occupational therapists need when working with school-aged children and adolescents. Such a description constitutes a competency framework (Hoge, Tondora, & Marrelli, 2005; Marrelli, Tondora, & Hoge, 2005; Mirabile, 1997; Shippmann et al., 2000). Competency frameworks have been developed across all health care disciplines in response to system dynamics that are demanding more effective professional services. Service delivery systems are increasingly complex, with intensified expectations placed upon practitioners like occupational therapists to produce cost- and clinically effective services (Hoge, Tondora, et al., 2005; King et al., 2007). More and more, consumers of healthcare services are informed about their options and demand increased collaboration with their healthcare providers.

In addition, professional regulatory bodies have been shifting towards competency-based approaches to professional development. Given these multiple system forces, competency “has become an ‘unavoidable’ term in healthcare… Policymakers laud it, educational programs are required to produce it, and consumers increasingly demand it” (Hoge, Tondora, et al., 2005, p. 512). The relevance of competency to occupational therapy is evidenced in the shift in fieldwork education evaluation from a skill-based to a competency based approach (Miller, Bossers, Polatajko, & Hartley, 2001), as well as the
Association for Canadian Occupational Therapy Regulatory Organizations [ACOTRO] recently released revised essential competencies publication to guide occupational therapy practice (2011).

With the terms ‘competence,’ ‘competent,’ and ‘competency’ commonly used across multiple domains, there is a wide range of definitions (Hoge, Tondora, et al., 2005; Shippmann et al., 2000). Competence can be understood as “a learned ability to adequately perform a task, duty or role” (Roe, 2002) that rests on the “pillars of knowledge, skills, and attitudes” (Bartram & Roe, 2005, p. 95). The knowledge that is unique to a particular profession is typically acquired through the formal education process (Roe, 2002), but the acquisition of discrete knowledge items can happen in isolation and does not automatically translate to more effective performance in a professional role (Cowling, Newman, & Leigh, 1999). This is evident when practitioners attend continuing education events and access new knowledge, but do not change their performance in practice (Hoge, Tondora, et al., 2005). High-level evidence may exist, but typically it is only inconsistently used (Straus, Tetroe, & Graham, 2009a), with a little more than half of all recommended health care practices actually implemented (Glasgow & Emmons, 2007). Moreover, when continuing education opportunities are not available to support professional development among occupational therapists, as in the case of occupational performance issues related to executive functioning issues in children and youth, competency development is stymied.
In reality, several types of knowledge, skills, and abilities are integrated into competencies (Roe, 2002) that are prerequisites for effective performance (Hoge, Tondora, et al., 2005). Indeed, the concept of competence implies that there is a range of potential performance, with competence falling somewhere between the basic and exceptional levels that are at opposite ends of the spectrum (Storey, Howard, & Gillies, 2002). The higher level of competence is expertise, which is far more than having the technical or interpersonal skills (King et al., 2007). Expertise can, however, be “fostered by making the expertise trajectory visible” (Lajoie, 2003, p. 23), explicating the expertise in a way that enhances the potential for professional growth and development for all therapists (King et al., 2007). Accessing this higher level of competency is critical to equip practitioners for the dynamic environments in which they practice (Hoge, 2002). Because job tasks change and evolve over time, an enhanced understanding of the competencies needed to respond effectively in current healthcare systems is critical.

Within professions and individuals, competence can fluctuate as a function of previous experiences and background knowledge and skills (Storey et al., 2002), resulting in a varied set of approaches to clinical practice (Hoge, Tondora, et al., 2005). Educational systems vary in how they keep pace with the changes in healthcare systems and how much they expressly breach the silos that exist between disciplines (Hoge, Tondora, et al., 2005) that can prepare practitioners for multi-disciplinary practice. When occupational therapy roles evolve and grow in response to the occupational performance
needs of their clients, the competencies associated with effectively addressing those needs must be clearly understood.

The Current Study

The overall purpose of the thesis is to identify and describe the key competencies required for occupational therapists to facilitate occupational performance when working with children and youth who experience executive functioning issues. Developing a competency framework for occupational therapists that is useful requires that it respond to the needs and priorities of occupational therapists in practice settings. Research must be connected to practice realities for it to be relevant (Lomas, 2009), moving beyond the traditional knowledge creation and passive dissemination push efforts that are now known to be insufficient for operationalizing new research knowledge (Straus, Tetroe, & Graham, 2009b). As such, a knowledge translation approach was adopted for the current study. Often referred to as “KT,” knowledge translation is designed to “address the gap between what is known from research and knowledge synthesis and implementation of this knowledge by key stakeholders with the intention of improving health outcomes and efficiencies of the health care system” (Graham et al., 2006, p. 14).

Virtually synonymous with KT in Canada, the Knowledge To Action (KTA) framework is specifically designed to bridge the knowledge-to-action gap (Graham et al., 2006). After carefully reviewing over 30 planned action theories (Graham et al., 2006), the authors of the KTA synthesized these models and theories. Such an integrative perspective is grounded in theories of individual change—cognitive, educational,
attitudinal, social, and behavioural—but also on systems level change, drawing upon organizational learning and culture bases (Grol, Wensing, Hulscher, & Eccles, 2005). In so doing, the KTA responds to the need to understand the multiple layers and factors of the context in which the planned action is slated to occur. An effective union, the KTA marries the action phase to a knowledge creation phase (see Appendix B). Knowledge creation includes knowledge inquiry, knowledge synthesis, and a knowledge product, a process in which research is continually refined so that, ultimately, “only the most valid and useful knowledge is left” (Graham et al., 2006, p. 18). The action cycle adapts knowledge products to local contexts, assesses barriers and facilitators to knowledge adoption, selects, tailors, and implements interventions, monitors knowledge use, evaluates outcomes, and sustains knowledge use. The researcher and knowledge user interact dynamically throughout the phases of the project, co-creating a knowledge product that is useful and relevant to the knowledge user. The entire knowledge-to-action process is dynamic, complex, and iterative, with boundaries between knowledge creation and action both permeable and fluid. Knowledge phases may directly impact any of the action phases, which can proceed concurrently or in sequence (Graham et al., 2006).

This research uses a multiple method, phased approach that draws on both qualitative and quantitative data to produce a comprehensive analysis (Creswell, 2003) and is structured according to the creation stages within the KTA process. Knowledge creation involved knowledge synthesis of literature and knowledge inquiry of practice expertise, and competency model and framework knowledge products.
During knowledge inquiry, the purpose was to access first generation knowledge. In this case, primary qualitative research was undertaken to generate the knowledge of practice expertise necessary for the competency framework knowledge products. In-depth interviews are required to access the distinct perspectives of the participants—expert, benchmark, and stakeholder (Marrelli et al., 2005; Shippmann et al., 2000)—necessary to contextualize the competency framework. Knowledge synthesis involved a scoping review to systematically map the occupational therapy literature explicitly discussing executive functioning. The inquiry process was contingent upon the scoping review to ensure the inquiry questions were grounded in the literature, requiring permeability between the knowledge inquiry and synthesis steps. Finally, during the knowledge product step of knowledge creation, a competency model and framework were developed, synthesizing and converging knowledge from both the inquiry and synthesis stages.

This study received ethical clearance from the Queen’s University Health Sciences Research Ethics Board (certificate #6003117) (see Appendix C for ethics clearance and Appendix D for consent forms). Key terms used in the thesis are outlined in Table 1-1.
Table 1-1. *Key Terms*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competency</td>
<td>“…a learned ability to adequately perform a task, duty or role” (Roe, 2002, p. 195) that rests on the “pillars of knowledge, skills, and attitudes” (Bartram &amp; Roe, 2005, p. 95).</td>
</tr>
<tr>
<td>Competency framework</td>
<td>Descriptive taxonomies of the knowledge, skills, and abilities that a professional group requires to effectively carry out assigned tasks.</td>
</tr>
<tr>
<td>Competency model</td>
<td>A “conceptual framework or organizing scheme that details the competencies that are required for effective performance” (Hoge, Tondora, et al., 2005, p. 520)</td>
</tr>
<tr>
<td>Executive functioning</td>
<td>A set of higher-level cognitive processes that are required to perform complex, dynamic, novel, goal-oriented activities</td>
</tr>
<tr>
<td>Knowledge Translation (KT)</td>
<td>A “dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system” (Canadian Institutes of Health Research, 2009)</td>
</tr>
<tr>
<td>Knowledge To Action (KTA)</td>
<td>Graham and colleagues’ model (2006) that enacts knowledge translation as a 2-phase process, knowledge creation and knowledge action. A knowledge product is created and refined through multiple steps in the action cycle.</td>
</tr>
<tr>
<td>Scoping review</td>
<td>A form of scholarly review used to map the breadth and range of literature on a topic that is complex or has not been previously reviewed.</td>
</tr>
</tbody>
</table>

**Organization of the Thesis and Overview of the Manuscripts**

This balance of this thesis consists of three manuscripts (Chapters 3, 4, and 5), with a reflexivity chapter (2) and an integrative discussion chapter (6). Chapter 2 offers an exercise in reflexivity, with the consideration of how my values, assumptions, and personal experiences have contributed to my engagement with this research. The first manuscript, Chapter 3, explores the concept of executive functioning as it is described in the occupational therapy literature through a scoping review methodology. In Chapter 4,
the second manuscript outlines qualitative research involving occupational therapists who work with school-aged children and youth to ascertain their perceptions of how executive functioning issues are recognized and addressed. Chapter 5 synthesizes and converges all literature and qualitative data to develop an occupational therapy competency model and framework that target executive occupational performance in children and youth. Finally, Chapter 6 integrates a discussion of the study findings as a whole and explores implications for professional development, academic curricula, and the breadth of the occupational therapy role with school-aged children and youth who have executive functioning issues.
Chapter 2

Reflexivity

As a qualitative researcher, conscious exploration of reflexivity is critical to the quality of the research. Reflexivity has been defined as a “deconstructive exercise for locating the intersections of author, other, text, and world, and for penetrating the representational exercise itself” (MacBeth, 2001, p. 35). To engage in reflexivity, Finlay (1998) describes four categories that researchers can use to systematically and self-consciously frame analysis of their subjective experience: 1. influence of researcher’s assumptions and experiences; 2. impact of researcher’s expectations; 3. examination of researcher’s behaviour and emotions; and 4. probe of unconscious responses.

Influence of researcher’s assumptions and experiences

Several years before I entered occupational therapy training, I was injured at a summer job and mandated to attend occupational therapy as part of a worker’s compensation program. My experience with a highly reductionistic occupational therapist was negative and non-individualized, and I was left with several performance and participation restrictions despite his focus on fixing my fine motor abilities. For many years, I had difficulties using my hands to write, but my abilities to discuss topics remained strong. This imbalance in my abilities created tensions with others who expected me to be able to use my hands as well as I could speak.
When I began to work with children and teens in a psychiatry setting who had been seen for fine motor remediation by school-based occupational therapy, but could still not think and write at the same time, their circumstances really resonated with me. Even though my own impairment issues were physical in nature, they were invisible and misunderstood, as were those of the children and teens with whom I was working.

Within this specialized unit, I worked with a wide range of professionals, including child psychologists, child psychiatrists, social workers, and educators. It was through my interaction with the team that I was exposed to the concept of executive functioning in children and how it informs a child’s ability to initiate tasks, execute plans, and regulate emotions and behaviours. Russell Barkley’s work on Attention Deficit Hyperactivity Disorder (ADHD), which defines ADHD as a disorder of executive functioning, contributed to a shared interdisciplinary knowledge base, forming the foundation for understanding the concept of executive functioning and its impact on occupational performance. A few years later, when a child psychology colleague lent me Peg Dawson and Richard Guare’s 2003 text, *Executive Skills in Children and Adolescents: A Practice Guide to Assessment and Intervention*, I started to really explore how executive functioning could be addressed more directly within the occupational therapy role. Although written for psychologists, Dawson and Guare had laid out the concept of executive functioning in terms of the child’s executive capacity, the ways in which activities challenge executive functioning, and the manner in which the environment can facilitate or hinder performance—a structure much like occupational therapy’s person-
environment-occupation congruence (Law et al., 1996). They described the difficulties in performing complex activities common to childhood and adolescence that I was regularly seeing in my own practice, but hadn’t realized were related to executive functioning.

Now equipped with the ability to name and frame executive functioning issues, I searched for tools and resources within occupational therapy that could support this perspective. I was frustrated by the limited resources that could help to guide my clinical reasoning, as the sensory and motor resources available didn’t help me to fully understand the occupational performance issues I was seeing, and the mental health resources didn’t support me in understanding the developmental aspects nor the developmental conditions associated with executive functioning. The exception was training to use the Assessment of Motor and Process Skills (AMPS) (Fisher, 2010), which refined my capacity to identify process skills (e.g., sequencing, initiates, heeds, etc.) during the observation of occupational performance.

I was beginning to appreciate how different my practice context was from occupational therapists working in school-based, physical, or neurological programs. The majority of the occupational therapists who had previously worked with my clients in psychiatry had interpreted their occupational performance issues through sensory and/or motor frames. However, in addition to these dominant occupational therapy perspectives, I had open access to interdisciplinary resources that helped me to acquire knowledge and skills about how children learn, self-regulate, and develop self-efficacy, and how their
families can be empowered with an accurate understanding of their children that facilitates effective support.

When I decided to return to university to do my doctorate, 40% of my client caseload had been previously seen by occupational therapists. I wondered how their issues had grown to require admission to a psychiatry service. Despite fine motor and sensory integration remediation programs, these children had developed significant behavioural, anxiety, and depressive disorders, accompanied by pervasive occupational difficulties, especially at school; underlying executive functioning issues did not seem to have been identified or addressed. I wanted to be able to develop a way of understanding children’s executive functioning and mental health that could benefit occupational therapists who were practicing in isolation or within a system that mandated them to attend only to sensory or motor issues.

These experiences set me on a path towards a strongly occupation-based, top-down orientation to practice, where the goal is not to fix what may not be fixable, but to tap into strengths and find adaptive accommodations. I believe that we can do better as a profession to enable our clients to participate despite the presence of impairments. I have noted that, within occupational therapy circles focusing on child health, there may be a tendency to polarize approaches into remediation or compensation. I believe that we as occupational therapists working with children and adolescents need to be operating from a balanced perspective. I have repeatedly seen that when the focus is unduly on remediation and that remediation does not yield a “fix” for the child’s performance
issues, there can be profound consequences for that child. In essence, when this happens we have translated a powerful message to the child that he or she is not good enough, did not try hard enough, and is somehow inferior because some aspect of that deficit remains. This can, in and of itself, lead to unforeseen and overwhelming consequences for the emotional, cognitive, and social development of a child or adolescent that, with a balanced approach, might be avoided. I would like my research to contribute to a balancing within the field so that the children and teens with whom we work are successfully enabled to engage in meaningful occupations in childhood and youth, preparing them to transition as healthy, balanced individuals into adulthood. These personal and professional experiences informed the shape and focus of my research and precipitated my commitment to develop occupational therapy tools that are relevant to the children and youth who live with executive functioning issues.

**Impact of researcher’s expectations**

Given their interest in participating in the research, I expected that participants would be invested in the topic. For the occupational therapists, it was likely that the level of commitment to their profession would be high. I anticipated that other occupational therapists would share my own investment in the profession, its development, and its ability to enable the performance of children and youth.

I also expected that the language associated with executive functioning would be used and recognized differently across the participant groups. I anticipated different levels of comfort with identifying and talking about the associated issues, but that all
would be able to identify and discuss them. As I planned to work with both benchmark occupational therapists who would represent the more typical practitioner as well as those considered to be experts, I expected a considerable range across participants in their ability to articulate performance issues related to executive functioning, as well as different capacities in verbalizing their reflections. I thought that those in the benchmark category may be struggling with client issues associated with executive functioning but not yet have a means by which they could identify or address them. As a result, I had to account for this variety in developing my recruitment strategy, ensuring the need to look for a diverse range of informants. The range of participants also suggested that I should be open and receptive to the notion that there might be multiple interpretations seen in practice.

**Examining researcher’s behaviour and emotions to gain insight**

Remediation of performance components is something that, for me, is rarely a priority. Participation and performance are paramount in my practice perspective. As such, I was prepared that some of my participants might not share this perspective and might place greater priority on the remediation of performance components, or may be largely unaware of executive functioning and its relation to occupational performance. I needed to be mindful of the potential disparity in practice perspectives. Moreover, I needed to bracket out my own opinions formed through my personal and professional experiences to effectively analyze interview data.
**Probing unconscious responses**

Data that might seem to contradict my developing framework could initially provoke a defensive reaction of deflection or transference on my part. Such a reaction would be grounded in concern that my own perspective was somehow fundamentally inadequate or flawed.

**Strategies to Engage in Reflexivity**

Several strategies were effective in promoting my continued capacity to engage in reflexivity throughout the research process:

- Critical review and challenge from my advisory committee at intermittent intervals in the process;
- Critical review and challenge from my supervisor at regular intervals in the process;
- Development and review of a reflexivity statement; and
- Maintenance of a reflexive journal to examine my reactions and responses.
Chapter 3

Executive functioning: A scoping review of the occupational therapy literature

Abstract

**Background:** Executive functioning is increasingly recognized as an important factor in facilitating the performance of complex, goal directed tasks. However, there appear to be different ways in which executive functioning is understood across disciplines, creating potential for confusion. **Purpose:** To explore how occupational therapy describes executive functioning. **Methods:** A scoping review of the occupational therapy literature was conducted. **Results:** Executive functioning is described both as a set of performance component skills or processes as well as the executive occupational performance inherent in complex occupations. Executive functioning is implicit in occupational performance and engagement and there are diagnoses which seem to be commonly associated with impaired executive functioning. Assessing executive functioning requires occupational dynamic, performance-based assessments, and interventions targeting executive functioning are grounded in metacognitive approaches. **Conclusions:** Points of tension emerged in the literature which have implications for occupational therapy practice, research, education, and professional development. Future directions are discussed.

**Keywords:** scoping study, cognition, literature review, assessment, intervention
Background

The way in which executive functioning is understood is changing, as is the frequency with which it is being discussed. The World Health Organization describes executive functioning as “higher-level cognitive functions” that are intimately connected with “complex goal-directed behaviours” (2007, p. 57). Within psychology, executive functioning is no longer understood to be circumscribed within the frontal and prefrontal lobes. Rather, executive functioning is believed to involve diffuse neuronal connections throughout the brain, leading to a more functional conceptualization of integrated capacities impacting on goal-directed behaviour (Oddy & Worthington, 2009). There has also been an increased awareness of how executive functioning profiles may change with development and diagnosis (P. Dawson & Guare, 2010). Similarly, there has been growing attention to understanding how executive functioning influences participation and performance in important life domains; for example, the education literature notes the impact of executive functioning on classroom performance (Kaufman, 2010; McCloskey et al., 2009; Meltzer, 2007b). Despite the growing recognition of the role of executive functioning on complex behaviours, there does not appear to be an accepted definition of executive functioning within or across disciplines. Instead, there are different conceptualizations about its components and its relation to other constructs (Cooper-Kahn & Dietzel, 2008; Cox, 2007; Zeigler Dendy, 2011).

Historically, executive functioning and its relation to occupational performance have not been broadly addressed within the occupational therapy literature. Rather, the
discussion of executive functioning has, for the most part, focused on the clinical issues that seem to be associated with specific diagnoses such as traumatic brain injury and stroke. Executive functioning has typically been identified as an issue and addressed when appearing within the context of a diagnosis associated with the frontal lobe (Crepeau, Cohn, & Boyt Schell, 2008; Toglia, Golisz, & Goverover, 2009). The purpose of this study was to conduct a scoping review to identify how executive functioning is described in the occupational therapy literature. An enhanced understanding of how executive functioning is defined within occupational therapy may elicit a shared meaning that can enable discussion and inform health service delivery, assessment, and intervention approaches both within the discipline and in inter-professional collaborations.

**Methods**

Unlike systematic reviews which have focused research questions and quality filters (Armstrong, Hall, Doyle, & Waters, 2011), scoping reviews facilitate an understanding of the breadth and range of literature on a topic that is complex or has not been previously reviewed (Mays, Roberts, & Popay, 2001). A scoping review can be effective when a field needs to “map a wide range of literature” (Ehrich, Freeman, Richards, Robinson, & Shepperd, 2010, p. 28). A scoping review methodology was selected as the most appropriate means of mapping the occupational therapy literature because of the need to clarify and contextualize what we know about executive functioning and occupational performance and engagement.
The study followed Arksey and O’Malley’s (2005) six-stage framework that advanced the methodological foundations for scoping studies: 1. identify the research question; 2. identify relevant studies; 3. select studies; 4. chart the data; 5. collate, summarize, and report the results; and 6. optional consultation. More recently, Levac, Colquhoun, and O’Brien (2010) refined Arksey and O’Malley’s original framework to continue to improve methodological rigour. The clarifications and refinements proposed by these authors have been followed in this scoping review.

**Identify the research question**

According to Arksey and O’Malley (2005), the research question needs to be wide enough to capture a wide breadth of knowledge, yet be clearly enough defined that database search strategies can be useful. Inherent in this stage is the challenge of balance, which led Levac, Colquhoun and O’Brien (2010) to recommend being mindful of the ultimate purpose of the study, the rationale for selecting a scoping methodology, and the clarity of the research question. In this project, the scoping review was instrumental in developing a better understanding of how executive functioning is conceptualized, discussed, described, and implied in occupational therapy literature. The results from the scoping review were critical to the development of an occupational therapy executive functioning competency framework. The scoping review question was, “How does occupational therapy literature describe executive functioning?”
Identify Relevant Studies and Study Selection

Identifying relevant studies requires a plan that clearly identifies search terms, databases, time frames, and language. The search was limited to English results and to the beginning of the CINAHL indexing in 1981. Within CINAHL, the original search terms were executive function*/executive skill*/executive control/dysexecutive or executive dysfunction*, combined with occupational therap*. This initial search yielded 37 English language results. In addition to the CINAHL results, hand searching was completed within occupational therapy journals (e.g., *The American Journal of Occupational Therapy, Canadian Journal of Occupational Therapy, British Journal of Occupational Therapy*, etc.) and the reference lists of key studies. An additional 27 journal articles and 7 book chapters were identified for potential inclusion.

Inclusion and exclusion criteria became refined with increased familiarity with the literature (Arksey & O’Malley, 2005). All 71 English titles and abstracts were reviewed. Potential sources were reviewed, and the inclusion and exclusion criteria refined.

**Inclusion criteria:** All articles, books, book chapters, and theses were considered eligible. The key criteria for inclusion were authors who were occupational therapists writing about executive function/skill/control, dysexecutive, or executive dysfunction and including executive functioning in the title, keywords, abstract, or key chapter points. For the purposes of this paper, the term “executive functioning” will be used to capture these terms. When an updated edition of a source was available, it was used. **Exclusion criteria:** If the terms executive functioning or occupational therapy were not used explicitly, the
source was excluded. Full source review then ensued with the 49 sources in the final data extraction pool. (See Appendix E.)

**Chart the Data, Collate, Summarize, and Report the Results**

All selected articles were reviewed using an analytic data guide. Data categories included authors, author disciplines, keywords, year of publication, focus of the source (e.g. assessment, intervention, etc.), source of literature (e.g. journal article, book chapter, etc.), key findings of relevance to the scoping review, definitions of executive functioning, impact of executive functioning on occupation, assessment, and intervention, and key quotes. The data extracted focused on the list of terms used to describe executive functioning and its impact on occupation as well as a description of the approaches or strategies used to address executive functioning within occupational therapy practice. This method of coding is consistent with a process-oriented approach to charting the data (Levac, Colquhoun, & O'Brien, 2010).

**Results**

Explicit discussion of executive functioning has increased dramatically in occupational therapy literature over the past few years. Of the 49 sources, only 3 references to executive functioning were located in the occupational therapy literature prior to 2001, whereas almost half were published in 2011. Sources were mostly peer-reviewed research articles, published predominantly in the United States by American or Israeli-based academics. Five themes emerged through the charting and analysis process.
Theme 1: Defining Executive Functioning

*It is difficult to define the term “executive function” because across disciplines, areas of research, and clinical settings executive function has a different definition and the term often times leads to a great deal of miscommunication* (Wolf, 2010, p. 459).

Executive functioning is defined in the occupational therapy literature as a set of performance component processes that are required for successful engagement in activities or tasks that are complex, non-routine, novel, dynamic, and/or unstructured. Some definitions delineate discrete performance component processes as if an individual has a finite capacity of each component or process; others explore complex occupational performance contextual requirements that elicit integrated and dynamic executive functioning. Still others blend the two (see Table 3-1 for examples of executive functioning definitions).
Table 3-1. Executive functioning definition examples

<table>
<thead>
<tr>
<th>Key idea:</th>
<th>Executive functioning is used as an “umbrella term” (Gillen, 2009, p. 245)</th>
</tr>
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<tbody>
<tr>
<td>Examples:</td>
<td>“include processes of flexibility; planning; inhibition; and self-monitoring, which includes interference-control processes, organization, and goal-oriented preparedness to act. Executive functions involve the regulation, inhibition, and maintenance of behavioral responses as well as problem-solving organization and reasoning” (Cermak &amp; Maeir, 2011, p. 251)</td>
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<td>“the processes of initiating, planning, and regulating task performance” (Hartman-Maeir &amp; Katz, 1997, p. 53)</td>
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<td></td>
<td>“Primary cognitive capacities include orientation, attention and memory that together form the pre-requisites for executive functioning such as reasoning, concept formation and problem solving” (Korner-Bitensky, Barrett-Bernstein, Bibas, &amp; Poulin, 2011, p. 241).</td>
</tr>
<tr>
<td>Key idea:</td>
<td>Executive functioning is required for complex, non-routine, dynamic and/or unstructured activities</td>
</tr>
<tr>
<td>Examples:</td>
<td>“supports occupational engagement, particularly in novel, complex, and unstructured activities” (Connor &amp; Maeir, 2011, p. S4)</td>
</tr>
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<td></td>
<td>“central to the ability of a person to synthesize information from several areas of the brain and to generate, implement, and correct strategies necessary to accomplish novel tasks in everyday life” (Wolf, 2010, p. 460)</td>
</tr>
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<td></td>
<td>“Participation in everyday life activities requires executive functioning skills to formulate goals, to plan strategies to achieve those goals, and to self-evaluate during these activities” (Rocke, Hays, Edwards, &amp; Berg, 2008, p. 528)</td>
</tr>
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</table>

When definitions identify the coordinated set of discrete components that are critical to performance, they use executive functioning as an “umbrella term” (Gillen, 2009, p. 245). Executive functioning is described as complex, higher-level or higher-order abilities, capacities, processes, or functions that draw on, supervise, or manage lower-level, basic, or primary elements of cognition or metacognition. Planning and organizing are commonly cited higher-level processes; a range of the most common
descriptors that have been used is outlined in Table 3-2. Performance of goal-oriented occupations that are sufficiently complex, novel, and dynamic to elicit executive functioning can be considered to be “executive occupational performance."

Table 3-2. Most common terms used to describe higher-level cognitive processes

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Sources</th>
<th>#</th>
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<tr>
<td>Goal directed behaviour</td>
<td>(Bottari et al., 2010; Bottari &amp; Dawson, 2011; Cederfeldt et al., 2011; Connor &amp; Maeir, 2011; Foster &amp; Hershey, 2011; Gillen, 2009; Hartman-Maeir &amp; Katz, 1997; Josman &amp; Rosenblum, 2011; Katz et al., 2011; Katz et al., 2007; Lipskaya et al., 2011; Maeir et al., 2011; Matheson et al., 2011; Preston, 2010; Rocke et al., 2008; Toglia, Goverover, Johnston, &amp; Dain, 2011; Voelbel et al., 2011; Wolf, 2010; Wolf &amp; Baum, 2011; Ziviani et al., 2008)</td>
<td>23</td>
</tr>
<tr>
<td>Initiate/Start</td>
<td>(Bade, 2010; Cederfeldt et al., 2011; dePoy, 1990; Foster &amp; Hershey, 2011; Gillen, 2009; Hartman-Maeir &amp; Katz, 1997; Josman, Berney, &amp; Jarus, 2000; Josman &amp; Birnboim, 2001; Katz et al., 2011; Katz &amp; Maeir, 2011; Katz et al., 2007; Kizony et al., 2011; Levy &amp; Burns, 2011; Lipskaya et al., 2011; Matheson et al., 2011; Nadeau &amp; Buckheit, 1995; Preston, 2010; Rocke et al., 2008; Wolf &amp; Baum, 2011; Ziviani et al., 2008)</td>
<td>21</td>
</tr>
<tr>
<td>Monitor</td>
<td>(Bade, 2010; Connor &amp; Maeir, 2011; dePoy, 1990; dePoy, Maley, &amp; Stanraugh, 1990; Foster &amp; Hershey, 2011; Hartman-Maeir &amp; Katz, 1997; Josman &amp; Birnboim, 2001; Katz et al., 2011; Katz &amp; Maeir, 2011; Katz et al., 2007; Kizony et al., 2011; Lipskaya et al., 2011; Matheson et al., 2011; Nadeau &amp; Buckheit, 1995; Preston, 2010; Rocke et al., 2008; Toglia</td>
<td>18</td>
</tr>
</tbody>
</table>
Mental/cognitive flexibility (Cederfeldt et al., 2011; Cook, 2008; dePoy, 1990; Gillen, 2009; Josman & Birnboim, 2001; Josman & Rosenblum, 2011; Katz et al., 2011; Katz et al., 2007; Kizony et al., 2011; Levy & Burns, 2011; Matheson et al., 2011; Precin, 2010; Rocke et al., 2008; Wolf, 2010; Wolf & Baum, 2011)

Organize (Bade, 2010; Cook, 2008; dePoy, 1990; Gillen, 2009; Hartman-Maeir & Katz, 1997; Josman & Birnboim, 2001; Josman & Rosenblum, 2011; Lipskaya et al., 2011; Matheson et al., 2011; Precin, 2010; Preston, 2010; Rocke et al., 2008; Voelbel et al., 2011)

Theme 2: Executive Functioning Impacts Occupation Performance and Engagement

Individuals who suffer from executive function deficits ...typically demonstrate difficulties with instrumental activities of daily living (IADL), employment, and social functioning, leading to a reduction in their full participation in community life (Maeir et al., 2011, p. S39).

Despite lack of consensus about what constitutes the core elements of executive functioning, there is agreement about the pervasive and critical impact that executive functioning can have on occupational performance and engagement. Executive functioning is considered the “most critical cognitive function that affects participation” (Wolf & Baum, 2011, p. 42). With participation affected by impaired executive functioning (Erez et al., 2009; Foster & Hershey, 2011; Maeir et al., 2011; Wolf, Barbee, & White, 2011; Wolf & Baum, 2011), roles can be restricted (D. Dawson et al., 2009; Erez et al., 2009) and community living (Bade, 2010; Korner-Bitensky et al., 2011; Wolf et al., 2011), independence (Bottari et al., 2010), and quality of life (Bade, 2010; Cermak & Maeir, 2011; D. Dawson et al., 2009; Wolf et al., 2011) may be affected negatively.

In addition to the global impact on an individual’s occupational performance, specific occupations are problematic with impaired executive functioning.
functioning supports complex occupations, especially when they involve dynamic and simultaneous task demands such as in work (Bade, 2010; Baum, Foster, & Wolf, 2009; Cermak & Maeir, 2011; Connor & Maeir, 2011; Erez et al., 2009; Maeir et al., 2011; Matheson et al., 2011; Tan, 2009; Wolf, 2010; Wolf et al., 2011; Wolf & Baum, 2011). Returning to work after acquiring executive functioning deficits is described as challenging (Baum et al., 2009; Wolf et al., 2011; Wolf & Baum, 2011), and individuals living with executive functioning issues experience higher rates of work disruption, underemployment, and lower social economic status (Bade, 2010; Cermak & Maeir, 2011; D. Dawson et al., 2009; Matheson et al., 2011). Similarly, managing a household can be negatively impacted when executive functioning is compromised (Bade, 2010; Cermak & Maeir, 2011; Erez et al., 2009). It has been proposed that impairments in executive functioning may preclude women from leaving abusive environments and executing sound judgment in their mothering roles (Gutman et al., 2004).

Difficulties in performing novel and complex tasks, compromised decision-making, self-regulation issues, school and academic performance are negatively impacted across the lifespan, with individuals frustrated with their ineffectual and unsuccessful efforts and unsatisfactory outcomes (Cermak & Maeir, 2011; Connor & Maeir, 2011; Toglia et al., 2011; Ziviani et al., 2008). Increased risks associated with executive functioning deficits and the occupation of driving have been reported (Cermak & Maeir, 2011; Korner-Bitensky et al., 2011; Wolf et al., 2011; Wolf & Baum, 2011). Social occupations, which are exceedingly complex because of the constant perception and interpretation of social
cues, selection and inhibition of appropriate responses, and ongoing monitoring and 
adaptation of responses, are “inherently linked with executive functioning” (Connor & 
Maeir, 2011, p. S4). Indeed, social relations within the family as well as with peers are 
impacted detrimentally by executive functioning issues, with higher rates of peer and 
familial conflict reported (Cermak & Maeir, 2011; Connor & Maeir, 2011; Foster & 
Hershey, 2011; Maeir et al., 2011; Wolf & Baum, 2011).

**Theme 3: Impaired Executive Functioning and Clinical Populations**

*It is now known the person can experience executive dysfunction even in the absence of frontal lobe injury...Almost any diagnosis that affects the brain can potentially affect to a greater or lesser extent executive functioning* (Wolf & Baum, 2011, p. 43).

The majority of occupational therapy literature targeting executive functioning has 
focused on acquired and traumatic brain injury (Bade, 2010; Bottari et al., 2010; Bottari 
& Dawson, 2011; Cook, 2008; D. Dawson et al., 2009; dePoy, 1990; Erez et al., 2009; 
Maeir et al., 2011; Matheson et al., 2011; Nadeau & Buckheit, 1995; Toglia et al., 2011) 
and stroke (Cederfeldt et al., 2011; Korner-Bitensky et al., 2011; Stapleton & Connelly, 
2010; Wolf et al., 2011). Occupational therapy literature has also identified executive 
functioning issues as commonly experienced among individuals living with 
schizophrenia (Katz & Keren, 2011; Katz et al., 2007; Lipskaya et al., 2011; Tan, 2009) 
and multiple sclerosis (Gentry, 2005; Katz & Maeir, 2011; Preston, 2010; Voelbel et al., 
2011). More recently, executive functioning has been noted as a “potentially overlooked 
factor in the management” (Foster & Hershey, 2011, p. S21) of Parkinsonian disorders 
and as a significant issue in mild cognitive impairment (Kizony et al., 2011). Moreover,
executive functioning issues may go unnoticed, as impaired executive performance can occur in the absence of a diagnosis and in the absence of other identified impairments traditionally associated with executive functioning deficits (Gillen, 2009; Rocke et al., 2008; Wolf & Baum, 2011).

Citing studies from other disciplines, there is a growing awareness within the occupational therapy literature of other health conditions for which executive functioning is significant. Executive functioning is vulnerable to disruption “even with mild neurological injury and many chronic health conditions” (Wolf & Baum, 2011, p. 42). Neurodegenerative diseases such as dementia (Katz & Maeir, 2011; Katz et al., 2007; Kizony et al., 2011; Levy & Burns, 2011), acquired neurological conditions (Wolf & Baum, 2011), mental health disorders such as bipolar disorder, neurodevelopmental disorders such as Attention Deficit Hyperactivity Disorder (ADHD) (Cermak & Maeir, 2011; Hahn-Markowitz et al., 2011; Pfeiffer, Henry, Miller, & Witherell, 2008), autism spectrum disorder (Gentry, 2005; Precin, 2010; Ziviani et al., 2008), and natural processes associated with aging (Cermak & Maeir, 2011; Gillen, 2009; Josman & Rosenblum, 2011) are increasingly alluded to in the literature. There is also literature that addresses executive functioning issues associated with cognitive disabilities (Connor & Maeir, 2011; Gentry, 2005; Hartman-Maeir, Katz, & Baum, 2009).

Recently, the term “atypical brain development” (Josman & Rosenblum, 2011, p. 223) was used to capture a group of diagnoses—learning disability, ADHD, developmental coordination disorder, and specific language impairment—in which
executive functioning is described as a common issue with children. Only a few articles have explicitly discussed executive functioning with children (Hahn-Markowitz et al., 2011; Josman & Rosenblum, 2011; Pfeiffer et al., 2008; Rocke et al., 2008; Weintraub, Yinon, Hirsch, & Parush, 2009; Ziviani et al., 2008). While focusing on child populations, the majority of these articles were not related to specific diagnoses; Rocke (2008) looks at assessing executive dysfunction among children, Ziviani (2008) explores school related occupational performance difficulties, and Weintraub (2009) investigates executive functioning issues associated with handwriting difficulties.

**Theme 4: Assessing Executive Functioning**

*People living with executive function impairment may perform normally on pen and paper tests of cognition but unfortunately present catastrophic everyday problems that are particularly evident in situations requiring multitasking and planning* (Gillen, 2009, p. 248).

Occupational therapy literature underscores the need for occupational therapy assessment of executive functioning to involve dynamic performance analysis strategies and observation of occupational performance. Concern is raised as to the relevance of standardized assessments of executive functioning for occupational therapy. Standardized assessments of executive functioning are typically administered in a structured environment that indicates when the test begins and ends, the sequence and duration of the tasks, and often targets the measurement of isolated cognitive skills, and the extent to which examiner cueing is required (Matheson et al., 2011; Rocke et al., 2008; Ziviani et al., 2008). Administration protocols often demand that the testing location is quiet and free of distraction, creating conditions quite disparate from regular daily living. These
conditions interfere with the elicitation of executive functioning issues in performance situations (Baum et al., 2009; Matheson et al., 2011; Wolf, 2010; Wolf & Baum, 2011). Designed to capture optimal performance on tasks assessing executive functioning performance components, such assessments do not accurately estimate an individual’s capacity for performance of occupations in real life tasks (Baum et al., 2009; Bottari et al., 2010; Cederfeldt et al., 2011; Connor & Maeir, 2011; Erez et al., 2009; Gillen, 2009; Katz & Maeir, 2011; Katz et al., 2007; Kizony et al., 2011; Levy & Burns, 2011; Maeir et al., 2011; Nadeau & Buckheit, 1995; Rocke et al., 2008; Wolf, 2010; Wolf et al., 2011; Wolf & Baum, 2011; Ziviani et al., 2008), which may be underestimated or overestimated by the assessment results (Nadeau & Buckheit, 1995).

In keeping with occupational therapy’s domain of concern, performance-based occupational therapy assessment is frequently described. The Executive Functions Performance Test is the most frequently cited performance-based assessment of executive functioning within occupational therapy (Bottari et al., 2010; Cederfeldt et al., 2011; Connor & Maeir, 2011; Gillen, 2009; Hartman-Maeir et al., 2009; Katz et al., 2011; Katz & Maeir, 2011; Katz et al., 2007; Kizony et al., 2011; Levy & Burns, 2011; Maeir et al., 2011; Rocke et al., 2008; Wolf et al., 2011). The administration protocol involves a systematic hierarchy of therapist cueing to determine what an individual can accomplish successfully. It also clarifies the nature of support required from the environment. This is a dynamic approach to assessment, one that is increasingly identified as useful for assessing executive functioning in a developmentally sensitive
manner (Cermak & Maeir, 2011; D. Dawson et al., 2009; Josman & Rosenblum, 2011; Ziviani et al., 2004). Dynamic performance analysis—also referred to as dynamic assessment and dynamic interaction assessment—explores how a person responds to complex new tasks and clarifies the conditions under which performance can be successful. As such, it may reveal patterns of errors and self-correction strategies used, and outlines what conditions or modifications are required for effective performance of a complex task. Dynamic performance analysis allows the therapist to discern what an individual can do independently and to compare it with what can be done when the experience is mediated by the therapist (Cermak & Maeir, 2011; D. Dawson et al., 2009; Josman & Rosenblum, 2011; Ziviani et al., 2004).

**Theme 5: Interventions targeting Executive Functioning**

*Given the impact of executive functions on so many aspects of participation, and the vulnerability of executive functions in a wide variety of health conditions, occupational therapy is faced with the challenge of providing theoretically driven, evidence-based interventions that will enable participation and improve the health and well-being of these individuals* (Tabor, 2011, p. S6).

Several categories of interventions were described to address executive functioning issues. Remedial approaches emphasize restoration of impaired executive functioning components such as memory, whereas compensatory approaches focus on the use of external devices, environmental accommodations, and task modifications to support executive occupational performance. Metacognitive approaches help clients to develop their capacity to use their strengths to optimize performance and to self-manage a spectrum of executive functioning issues (Cermak & Maeir, 2011; Connor & Maeir,
While improvements have been reported with all of these approaches, it appears that participants who engage in strategy-based approaches may benefit more than those who engage in skill-based remedial intervention (Katz et al., 2011; Toglia et al., 2011; Weintraub et al., 2009). It is unclear as to how much can be gained through an exclusively restorative component focus (Cermak & Maeir, 2011; Connor & Maeir, 2011; Tan, 2009). Furthermore, even when some component skills are ameliorated with medication, residual executive functioning deficits remain (Cermak & Maeir, 2011; Cook, 2008; Hahn-Markowitz et al., 2011). Framed more as a continuum of interventions (Katz & Maeir, 2011), different approaches may be selected based on the severity of the deficit, the individual’s awareness of the deficits and emotional state, as well as the nature and availability of environmental resources (Connor & Maeir, 2011). Alternatively, approaches have been categorized as ecological, dynamic, or cognitive and may be used in combination (Josman & Rosenblum, 2011).

Several factors are outlined that are associated with intervention success, ranging from improved efficiency (Hahn-Markowitz et al., 2011), goal identification (Toglia et al., 2011), and facilitation of “self-assessment and strategic thinking” (Toglia et al., 2011, p. S55) to enable participation (Connor & Maeir, 2011). The client is described as needing to be an active and motivated participant in selecting meaningful and relevant goals for intervention (Cermak & Maeir, 2011; Hahn-Markowitz et al., 2011; Josman &
Rosenblum, 2011). Goals involve specific skill development but also provide opportunities to transfer and generalize those skills. Because executive functioning skills develop and mature with age, experience, and guidance (Rocke et al., 2008), developmentally sensitive intervention approaches need to be tailored to the individual and his or her context (Cermak & Maeir, 2011; Josman & Rosenblum, 2011).

Compensatory task and environmental interventions for executive functioning involve accommodations that support performance as well as the resources available to provide such accommodations in the environment (Connor & Maeir, 2011). Common accommodations that are described in occupational therapy literature involve the use of external supports such as timers, day planners, cell phones, checklists, and digital voice recorders (Bade, 2010; Cermak & Maeir, 2011; Gentry, 2005; Hahn-Markowitz et al., 2011), as well as human support to break down the elements of the task (Gutman et al., 2004; Precin, 2010; Voelbel et al., 2011). Modifications to tasks can mitigate the impact of an executive functioning deficit. For example, dictating using assistive technology may draw less heavily on executive functioning than expressing language through handwriting (Gardner, 2002; Weintraub et al., 2009). Environmental modifications that have been described include adjusting the amount of distracting stimuli, complexity of the task, and degree of structure and prompting required (Cermak & Maeir, 2011; Connor & Maeir, 2011; Cook, 2008; Gillen, 2009; Tan, 2009). However, without environmental resources that support the use of the accommodations, the utility of environmental interventions may be undermined (Connor & Maeir, 2011).
Supportive individuals in the person’s environment seem to be associated with improved outcomes (Cermak & Maeir, 2011; Hahn-Markowitz et al., 2011; Weintraub et al., 2009). Furthermore, the skill with which the occupational therapist formulates the questions and mediates learning is critical to the success of the self-discovery process (Toglia et al., 2011). Vygotsky’s Zone of Proximal Development (Vygotsky, 1978) has been cited frequently to suggest that mediation may be a useful technique. Mediation involves the clear and structured presentation of information in a manner that helps the individual to attend to and discern the most salient features in order to make connections and enrich the learning experience (Cermak & Maeir, 2011).

The provision of strategies and accommodations is necessary but not sufficient to produce a positive outcome; rather, it is important to have a framework to contextualize the need for and purpose of strategies and accommodations to promote generalization (Josman & Rosenblum, 2011; Toglia et al., 2011). That framework should be systematically deployed, consistently embedded across activities, and structured while clients are learning the framework (Cook, 2008). Intervention tasks should be sufficiently novel, challenging, and complex to provide real world opportunities to engage in strategic action (Cook, 2008; Hartman-Maeir & Katz, 1997; Katz & Maeir, 2011; Toglia et al., 2011).

Regardless of the approach selected for intervention, the role of metacognition appears to have been described as critical to executive function (Hartman-Maeir & Katz, 1997). Metacognition allows an individual to be aware of any impairment in executive
functioning as well as the need to access accommodations or generate strategies that promote effective performance (Hartman-Maeir & Katz, 1997; Josman & Rosenblum, 2011). When a metacognitive framework is used as part of the intervention, a structured and systematic process should be explicitly implemented to support understanding, practice, and transfer of the strategies (Gillen, 2009). Ecologically relevant, the occupational therapy literature emphasizes the use of cognitive strategies within a metacognitive framework to manage executive functioning issues (Cermak & Maeir, 2011; D. Dawson et al., 2009; Gillen, 2009; Hahn-Markowitz et al., 2011; Katz et al., 2011; Toglia et al., 2011).

Metacognitive strategies are described in the literature that are associated with self-monitoring and self-evaluation (Hahn-Markowitz et al., 2011). Several global metacognitive or executive strategy frameworks have been described as useful for supporting executive occupational performance, involving verbal self-instruction techniques, goal management training, and/or problem solving training in clinical applications with individuals who have executive functioning difficulties (Cook, 2008; Gillen, 2009; Hartman-Maeir & Katz, 1997; Toglia et al., 2011). There are similarities to these strategies in how they structure the approach to facilitating goal-directed behaviour. Ylsivaker used the terms “Goal, Plan, Do, Review” (Gillen, 2009), which is similar to “WSTC” (What are you going to do? Select a strategy for the task. Try out the strategy. Check how the strategy is working.) (D. Dawson et al., 2009; Gillen, 2009), “Perceive, Recall, Plan and Perform” (Tan, 2009), “Stop, Plan, Review” (Hahn-Markowitz et al.,
2011), and the “Goal-Plan-Do-Check” (Meichenbaum & Goodman, 1971) utilized within the Cognitive Orientation to daily Occupational Performance (CO-OP) approach (D. Dawson et al., 2009; Gillen, 2009; Hahn-Markowitz et al., 2011; Wolf, 2010).

These global metacognitive strategies are congruent with the principles and approaches to executive functioning interventions. Global metacognitive strategies can act as integrators of the combination intervention approach. External compensatory strategies gradually become internalized, blurring the line between improvement in an executive functioning deficit and effective strategic use of a compensatory approach (Cook, 2008; D. Dawson et al., 2009) such that “both arguments are valid” (Toglia et al., 2011, p. S58). CO-OP seems to be emblematic of this reality; the approach combines task specific and metacognitive approaches, consistently implementing a global metacognitive strategy while incorporating therapeutic intervention through specific tasks.

**Discussion**

The purpose of this scoping review was to examine how the occupational therapy literature describes executive functioning. The literature speaks to the importance of executive functioning and its effect on occupation, the role of the occupational therapist in addressing executive functioning, and assessments or practice interventions that are used when working with clients who have executive functioning difficulties. Five themes were developed from the literature: 1. Defining executive functioning; 2. Executive functioning affects occupational performance and engagement; 3. Impaired executive functioning and clinical populations; 4. Assessing executive functioning; and 5.
Interventions targeting executive functioning. Points of tension and the implications of these findings for occupational therapy practice and research are discussed, as are future directions.

**Points of Tension**

The scoping review revealed considerable variance in how executive functioning is conceptualized. Overall, the literature suggests that executive functioning is a complex process involving many inter-related factors. The myriad terms associated with executive functioning in the occupational therapy literature are entangled. Terms shift and overlap in their meaning and in relation to other constructs under discussion. For example, self-awareness, awareness, monitor, self-monitor, self-regulate, and self-correct are all used, sometimes as distinct constructs (e.g., Cederfeldt et al., 2011) and, in other instances, with overlapping meaning (e.g., Matheson et al., 2011). Decision-making is sometimes discussed as a discrete entity (e.g., Stapleton & Connelly, 2010), and at other times described as a factor in problem solving (e.g., Gillen, 2009). Terms are also used with varying levels of precision. Without consensus on a definition of executive function, barriers to understanding and communicating about the role of executive functioning in occupational performance are reinforced (Wolf, 2010).

While recognition of the effect of executive functioning on performance is critical, assessment is equally so. If occupational therapy services are structured to assess specific performance components or less complex aspects of performance such as routine self-care tasks, executive functioning issues may not be detected as the assessments are not
complex enough to reveal executive occupational performance issues (Josman & Rosenblum, 2011; Wolf et al., 2011). There is a call for the development of ecologically-valid assessments of executive functioning that responds to these issues (Josman & Birnboim, 2001; Wolf, 2010). The literature suggests that, without explicitly considering executive functioning and its relation to occupational performance, occupational therapists may be neither identifying the issues accurately nor addressing them in an effective way (Bade, 2010; Connor & Maeir, 2011; Erez et al., 2009; Wolf et al., 2011; Wolf & Baum, 2011).

Discussion of assessment of executive functioning is split into a focus on executive functioning components such as memory and attention versus executive occupational performance. The key distinction appears to be assessing the executive functioning performance component deficit versus the effect of that executive functioning deficit on occupational performance (Josman & Birnboim, 2001; Wolf et al., 2011). This assessment issue underscores the polarity of the bottom-up orientation to practice that emphasizes correcting performance components and the top-down orientation that evaluates the level of occupational performance itself (Josman & Birnboim, 2001). Top-down, occupation-based performance assessments that demand observation of the occupational performance in its typical context affords the occupational therapist with insight into contextual and task demands, as well as into the difficulties that a client may have with execution of complex occupations (Bottari et al., 2010; Hartman-Maeir et al., 2009; Rocke et al., 2008; Ziviani et al., 2008). Intervention approaches are similarly
polarized between interventions that focus on remediating components and a growing trend towards the systematic use of a metacognitive framework to provide structure and context for strategies developed and accommodations that will be required. Metacognitive frameworks like CO-OP (Polatajko et al., 2001), traditionally used as an intervention for motor learning disabilities, are finding broader application and promising efficacy among individuals with executive functioning issues.

**Future Directions**

With the growing awareness of the effect and pervasiveness of executive functioning on occupational performance comes recognition that occupational therapists must be cognizant of the possibility of executive functioning issues when assessing occupational performance. Yet, at present, regardless of diagnosis, executive functioning deficits may not be recognized, even in clinical populations like individuals who have had a stroke, a diagnosis that has traditionally been associated with executive dysfunction (Wolf et al., 2011). By extension, executive functioning may be identified even less frequently in practice areas that have not been previously been concerned with impairments of executive functioning. Wolf and Baum stress that “executive dysfunction is an occupational performance problem and not a diagnosis specific problem” (2011, p. 43). When deficits in executive functioning are not recognized, their effect on daily occupational performance compounds and can cascade into secondary issues (Wolf, 2011; Bade, 2010):
a maladaptive cycle may begin. This disabling cycle, triggered by negative occupational experiences due to executive function deficit, may have broad implications for overall health and well-being, including reduced self-efficacy, occupational withdrawal, social isolation, and deterioration in mental and physical health (Tabor 2011, p. S5).

To mitigate and even prevent this cycle, enhanced recognition of executive functioning in the context of occupation will be required.

There are also training and system issues to consider with assessment. A focus on impairment may persist in some areas of occupational therapy practice rather than on the activity and participation dimensions described in the World Health Organization’s (WHO) International Classification of Functioning, Disability and Health—Children & Youth Version (ICF-CY) (2007). The level of skill required for clinicians to be able to accurately assess performance errors in naturalistic contexts will need to be ascertained. Bottari and Dawson (2011) have shown that neither total years of practice nor years of practice with individuals with neurological issues were significantly correlated with accuracy of performance-based observations of executive functioning.

**Limitations**

Scoping studies are not intended to evaluate the quality of included sources, and therefore cannot draw conclusions about the methodology or rigour of the sources. It is possible that broader use of databases may have yielded an increased number of sources. The process of analysis and summarizing the data is iterative, and may have been organized differently by another research team. Including the consultation step of the scoping review methodology may have enhanced the scoping review.
It is possible that occupational therapists are implicitly discussing executive functioning in the literature, without using the term explicitly. Based on the inclusion criteria, some sources were excluded (e.g., Leew, 2001; Missiuna, Mandich, Polatajko, & Malloy-Miller, 2001; Rodger & Liu 2008) that likely were dealing with issues of executive functioning. Sources that discussed diagnoses such as acquired brain injury and attention deficit hyperactivity disorder, both known to be highly correlated with executive functioning issues, but that did not expressly use the term executive functioning, were also excluded (e.g., Chu & Reynolds, 2007; Gutman & Szczepanski, 2005; Jones & Drummond, 2005; Jones, Drummond, & Vella, 2007). Nevertheless, the exclusion of these sources was required to better clarify how the occupational therapy literature is explicitly describing executive functioning.

Conclusion

A scoping review methodology was used to explore how the occupational therapy literature describes executive functioning. Although the rate and frequency with which executive functioning is discussed have recently surged, there remains a lack of consensus about the construct itself. There is growing recognition of the connection between occupational performance and executive functioning that extends well beyond the traditional diagnostic identification of executive functioning impairment in stroke or traumatic brain injury. Given the breadth of executive functioning issues across client groups and ages, occupational therapists need to consider executive functioning in holistic, occupation-based assessment, which requires a dynamic analysis of
performance. The literature appears to be shifting away from a remedial orientation, with more current interventions combining compensatory environmental and metacognitive frameworks to promote effective and efficient occupational performance. Occupational therapy education and training may be required for occupational therapists to become more familiar with how executive functioning affects occupational performance, as well as assessment and intervention approaches effective in targeting occupational performance affected by executive functioning.
Chapter 4

Broadening the occupational therapy toolkit: An executive functioning lens for occupational therapy with children and youth

Abstract

Background: The occupational therapy literature has recently begun to explore the concept of executive functioning and its pervasive effect on occupational performance. Very little attention has been paid to executive functioning and occupational performance and engagement issues among children and youth. Purpose: This study explored occupational therapists’ perceptions of how executive functioning is recognized and addressed within occupational therapy for children and youth. Methods: Inductive qualitative content analysis was used to analyze the in-depth interview data from 13 occupational therapist participants with a range of practice contexts and duration of experience. Findings: Participant data suggest that executive functioning be explicitly and systematically considered within the clinical reasoning process. System and professional barriers create challenges to occupational therapists, constraining their ability to recognize, label, and address executive functioning performance issues. Occupational therapists who have integrated executive functioning into their practice perspective acquired knowledge and skills through interprofessional collaborations, client interactions, and professional development opportunities. Conclusions: Occupational therapists working with children and youth need an occupational executive functioning
framework and practice resources if they are to integrate an executive functioning lens to more broadly enable the occupational performance of their clients.

**Key words**: occupation-based, occupational performance, occupational engagement, top-down

**Background**

Executive functioning is a complex neuropsychological concept referring to a person’s ability to plan, initiate, organize, connect information, transition, shift mindsets, set goals, prioritize, remember, and self-monitor. Executive functioning is comprised of “multiple cognitive capacities that act in a coordinated way” (McCloskey et al., 2009, p. 15). Also referred to as executive skills or executive functions, executive functioning is intimately connected with the processes by which people do purposeful activity, independent of intelligence (Cox, 2007; P. Dawson & Guare, 2010). In neuropsychology, executive functioning in children and adolescents has been traditionally examined in the context of traumatic brain injuries (P. Dawson & Guare, 2010). More recently, however, psychology and education have looked to executive functioning beyond the context of brain injury. Forming the very foundation skills for success across academic, social, leisure, and family activities, executive functioning informs a child’s ability to initiate tasks, regulate emotions and behaviours, and progress towards goals for a broader group of children and adolescents (P. Dawson & Guare, 2010; McCloskey et al., 2009; Meltzer, 2007b).
Executive functioning deficits are the common denominator across the most prevalent disorders of childhood—Attention Deficit Disorder (ADHD), Learning Disorder, Anxiety Disorder, and Autism Spectrum Disorder (Altarac & Saroha, 2007; Children's Mental Health Ontario, 2007; Faraone et al., 2003). Despite the significant prevalence of disorders affecting executive functioning, this group of children and adolescents can often have their needs go undetected and unmet, and they become at risk for secondary mental health problems, lifelong reduction in income earning potential, increased likelihood to access government income support programs, increased risk of dropping out of high school, and increased risk of involvement with the criminal justice system (Crawford, 2002; Schultz, 2003).

Notwithstanding the prevalence and pervasive effect of executive functioning issues, handwriting problems remain the most common reason for which children are referred to occupational therapy (Case-Smith, 2002; Hoy et al., 2011). Research suggests that traditional interventions prevail, primarily fine motor, gross motor, and visual perceptual performance component assessment and intervention with elementary school children (Case-Smith & Archer, 2008), with an emphasis on fine motor and sensory integrative milestone acquisition (Cahill, 2006). As a result, unless they demonstrate sensory or motor issues, children and youth experiencing occupational performance issues associated with executive functioning issues do not typically receive occupational therapy services that would address executive functioning (Cahill, 2006). Yet, occupational therapists could help to identify those students who, because of executive
functioning issues, are having difficulty doing what they need to do, want to do, or are expected to do. Once identified, occupational therapists could provide targeted interventions before secondary and lifelong effects of executive functioning issues develop (Chandler, 2007; Schultz, 2003). The purpose of this qualitative study was to explore how occupational therapists perceive executive functioning to be recognized and addressed within occupational therapy practice with school-aged children and youth.

**Methods**

**Design**

A qualitative research approach was selected to explore occupational therapists’ perceptions of executive functioning in occupational therapy with school-aged children. Qualitative methods are used to explore complex issues and to create rich descriptions that foster an enhanced understanding of the topic under study (Bernard & Ryan, 2010; Creswell, 2007; Patton, 2002). Inductive research approaches are thought to “strengthen the transformation of professional craft knowledge into publicly verifiable and potentially transferable practice-based theory” (Higgs & Titchen, 2001, p. 531).

Cited widely, Elo and Kyngas (2007) explicated the process of qualitative content analysis by synthesizing previous methodological papers using the approach; their recommended procedures were implemented in this study. Qualitative content analysis can be used when the study looks to describe a multifaceted phenomenon, and is particularly appropriate when there is a paucity of existing research literature on that phenomenon (Elo & Kyngas, 2007; Hsieh & Shannon, 2005).
Sample

Potential participants were identified through professional networks as well as conferences and occupational therapy agencies. Critical case sampling was used to identify “key informant” experts—participants that are “well informed, are accessible, and can provide leads about other information” (Gilchrist, 1992, as cited in Creswell, 2007, p. 243). Snowball sampling was also employed to identify other potential participants. The expert sample is defined as occupational therapists who have worked with children and/or adolescents in settings where executive functioning issues would be common. For example, experts might work in settings such as a child and adolescent psychiatry service, in private practices or role-emerging settings geared towards learning disability, autism spectrum disorders, or attention deficit disorders, as consultants to schools for more than 5 years, or in services designed to deal with home and community performance issues unrelated to physical disability or access. Stratified purposive sampling was also used to identify occupational therapists who did not meet the expert inclusion criteria but had been working with school-aged children for fewer than 5 years. Participants were purposefully selected to ensure variation in terms of types of professional experiences, number of years working with school-aged children, education, and age; such diversity in the sample increases the likelihood of a richer exploration of the phenomenon (Patton, 2002). Recruitment continued until theoretical saturation had been met (Creswell, 2007).
**Data Collection**

Each in-depth, semi-structured interview lasted approximately one and a half hours. General demographic information such as age, gender, and years of practice with school-aged children was collected. Open-ended questions such as “How you would conceptualize executive functioning?” and “How do you think executive functioning impacts children or youth and their occupational performance?” were used. Probes that were open-ended as well as specific to the participant’s response were used (Hsieh & Shannon, 2005) to explore descriptions of their perceptions of executive functioning and its effect on occupational performance in school-aged children, watershed moments in learning about executive functioning, and barriers, facilitators, and resources in developing their knowledge about executive functioning. All participants were questioned about the same areas to promote dependability of the findings (Graneheim & Lundman, 2004). See Appendix F for interview questions.

**Data Analysis**

After verbatim transcription, interview transcripts were reviewed for accuracy. The data analysis process followed the steps outlined for qualitative inductive content analysis to generate knowledge that is grounded in the unique participant data (Elo & Kyngas, 2007). Interview transcripts were read repeatedly to ensure immersion in the data. Then, codes were derived line by line, defined from the data during data analysis. During the preliminary iterative coding process, the researcher made notes; the labels that formed the initial coding scheme emerged (Elo & Kyngas, 2007; Hsieh & Shannon, 2005).
context of each interview as a stand-alone entity was considered when applying codes to meaning units (Graneheim & Lundman, 2004). The coding scheme is a systematic and analytic procedure used to create a map of categories, using comparative strategies between data (Elo & Kyngas, 2007). Rigor was ensured through supervision and advisory committee guidance debating the ways in which the data were labelled, reviewing tentative labels and revising them, and ongoing dialogue and review (Graneheim & Lundman, 2004). Member checking was completed iteratively during data collection and analysis, and final themes were also sent out for member checking to promote rigour.

Codes were subsumed under categories depending upon linkages and relationships across codes and subcategories (Hsieh & Shannon, 2005). Categories emerged inductively from the data (Hsieh & Shannon, 2005) as meaning units that contain related content and context. A group of manifest content with shared elements (Graneheim & Lundman, 2004), categories are judged in terms of internal homogeneity and external heterogeneity (Patton, 2002) and labelled using “content-characteristic words” (Elo & Kyngas, 2007, p. 111). Definitions for each category were developed, and exemplars for each code and category identified (Hsieh & Shannon, 2005). Such “authentic citations” (Elo & Kyngas, 2007, p. 112) add to the credibility of the study. Finally, themes were created to link the meanings of categories together, expressing “the latent content, that is, what the text is talking about” (Graneheim & Lundman, 2004, p. 111). Abstraction involved higher-level description and interpretation (Graneheim & Lundman, 2004), and
continued iteratively until complete (Elo & Kyngas, 2007). To enhance reliability, the data was repeatedly revisited to assess how well the categories and themes represented and reflected the data (Elo & Kyngas, 2007). Participant quotations will be italicized throughout, and numbers will be used rather than names to ensure anonymity of their identity.

**Findings**

Thirteen occupational therapists with a range of professional experience with school-aged children were recruited. Participants were drawn from 10 different communities of varying size across Canada, involved in a combination of practice settings that include community agencies, school-based occupational therapy, private practice, centre-based services, and academic institutions. Ten of the occupational therapists met the expert criteria (OT-E) and 3 the benchmark (OT-B), which represents the broader population of occupational therapists. Figure 4-1 describes characteristics of the sample in more detail. Some participants use the abbreviation “OT” for “occupational therapist.”
The study findings revealed that occupational therapists struggle with identifying, naming, and framing executive functioning in relation to the occupational performance issues of school-aged children. The descriptions of executive functioning offered by the occupational therapists in the study shared many features and terms. Participants described executive functioning as “higher-order” or “higher-level” thinking or skills that allow children to make plans, organize themselves, initiate actions, execute plans, monitor their progress towards the goal, adapt their efforts, and complete execution of the occupation. Executive functioning was thought to act as an operating system, manager, or overseer of other lower level capacities:
...it’s kind of the farthest away from basic component skills to the top levels of how somebody makes sense of everything that’s going on in the world and figures out how to change, adapt, respond based on all of the different pieces of information that are coming in (OT02-E).

Participants noted that incorporating executive functioning into their clinical reasoning aligns closely with both their individual and the profession’s shift towards top-down, occupation-based practice. It enables therapists to shift towards attending to the “how” of occupational performance and engagement.

The focus on the execution of the occupational performance implicit with the executive functioning lens is “so perfectly OT because, you know, it’s part of that whole, ‘why can’t they do it’” (OT11-E). Explicitly considering executive functioning and its relation to occupational performance, “gives OT a whole new way of looking at this stuff that it’s always been there but we haven’t really put words to or put a lot of value to” (OT09-E). According to a participant with diverse experience with children, expressly incorporating executive functioning knowledge “can contribute to understanding occupation” (OT01-E). One participant remarked that the occupational therapy

...toolkit really needs to be expanded for -- for therapists to include those kinds of approaches that will enable them to get at the top down as opposed to bottom up, you know, so that they understand that maybe they could approach this from a parent coaching perspective. They could approach this from just modifying an environment; they could approach this just from, you know, a cognitive strategy perspective, and not always assuming that they’ve got to, you know, pull in a sensory motor framework or SI or NDT or all those things (OT03-E).

Executive functioning is not, however, a panacea that can account for all occupational performance issues. It is not the “be all, end all” (OT02-E), but a critical lens that can be
systematically explored along with other perspectives through the clinical reasoning process.

Three themes were identified and developed. The first addresses the “need to see” executive functioning. The second captures barriers that limit how well an occupational therapist working with school-aged children can “see” through the executive functioning lens. Finally, the third theme proposes how occupational therapists “learn to see” through the executive functioning lens.

**Theme 1: The “need to see” executive functioning**

**Misunderstood children**

Participants noted that it is common for adults to misunderstand executive functioning performance issues among children and youth, perceiving them to be lazy, lacking in motivation, and wilfully misbehaving. Executive functioning performance issues are often “misinterpreted as, ‘this is behaviour’...they’ve got voluntary control...they’re doing it on purpose” (OT07-B). Being able to see past the externalizing behaviours requires that an occupational therapist can recognize that executive functioning is a factor in the performance issue, identify its effect, and label it accordingly.

**Widespread effects**

The occupational therapists in the study described the effects of executive functioning issues on occupational performance as negative and widespread, interfering with independence levels and engagement in preferred occupations. From social
interaction to self-care routines to the classroom to doing homework, school-aged children with executive functioning issues were consistently described as struggling to get started, to understand what is expected of them, to realize that they need to ask for help, and to recognize when they are missing information. One participant reported that the statement “well, he seems to not do too bad once I tell him what to do, but he can never get started, and he can never figure it out by himself” (OT11-E) aptly describes school-aged children struggling in daily life due to executive functioning difficulties. Another commented on executive functioning and performance: “if you can’t plan, envision, organize, adapt to your environment, you just cannot perform. You’re stuck before you even start” (OT10-E).

Making sense out of the task at hand can overwhelm school-aged children’s executive functioning, as “they truly don’t know how to make sense of what they are seeing” (OT13-E). Core to that difficulty is being able to break the task down into its essential elements, a process that helps define the plan, its sequence, and a sense of the desired product. Such deficits create a need for higher levels of explicit structure to be provided. These difficulties in engaging in novel tasks that involve multiple steps and/or complex sets of instructions are multifaceted:

*In a school situation, for example, the kid’s having difficulty figuring out, okay, here is the end-result assignment that I need to produce in three weeks’ time but really not having a concept of, you know, so what does that mean right now, how do I break that down, how long are steps going to take, how much planning do I have to put into this, what are the integral pieces that go into that sort of planning* (OT03-E).
Discerning the most salient aspects of a task proves challenging, compounded by deficits in discrete executive functioning performance components like attention, memory, cognitive rigidity, and impulse control. A child with working memory issues may express: “it’s in my head, I just can’t find it, I know it’s in my head” (OT02-E). Such deficits add significant burden to completing non-routine tasks. Furthermore, with growing age, curriculum and family expectations increasingly tax a student’s executive functioning as projects are introduced, writing becomes less about copying words and more about generating organized and integrated written composition, and increased levels of independence and self-direction are expected at home.

**Negative consequences**

If executive functioning impairments are not recognized and accommodated for, children and youth will

...know from looking around to their peers that they’re not doing what the other people are doing, that there’s something really different about them and that’s what they really know, ... is that it’s something wrong and different and bad about them compared to their peers? Because everyone else seems to get it (OT13-E).

Within their primary productivity role as students, children and youth with executive functioning problems increasingly avoid tasks like written composition that exceed their executive functioning capacity. School refusal and disengagement from the student role become more and more common with increasing grade level, along with secondary mental health issues such as depression, anxiety, and even suicide. Consequently, participants described foreseeable sequelae: “you either get the outburst behaviour or
you get the kid that is not engaged. He is just sitting there” (OT08-B). To mitigate these
types of negative outcomes, participants emphasized the importance of incorporating an
executive functioning lens into the occupational therapy practice repertoire with school-
aged children: “it needs to become one of the hypotheses that we generate, we test, we
accept, we reject that, you know, the reason he can’t do that” (OT02-E).

Theme 2: Barriers to “seeing” executive functioning

Despite the prevalence and impact of executive functioning on occupational
performance among school-aged children, there are barriers that make it difficult for an
occupational therapist to “see” the executive functioning. The executive functioning
issues may be obscured from view by professional and system structures that interpret the
issues to be sensory or motor in origin. Even when therapists do recognize the effect of
executive functioning, they are frustrated by a lack of pre-service preparation and a
dearth of resources.

Obscured from View

Many participants remarked that they may not be consciously aware of the presence
or influence of executive functioning on occupational performance. Indeed, participants
speculated that the source of occupational performance issues may be instead attributed
to sensory or motor factors, precluding consideration of executive functioning in the
clinical reasoning process. Difficulties in getting started, for example, may be interpreted
as a sensory integrative praxis issue rather than as an executive functioning impairment in
initiation. As a result, occupational therapists may directly observe performance
manifesting executive functioning issues, but not recognize them as such. One experienced therapist reflected that:

...executive functioning doesn’t get the -- it’s not front and center-- for pediatric therapists, in my experience. And I think that when you look at the literature, you see there is a real disconnect because it’s kind of like all of these kids, even if they got say, pediatric stroke versus adult stroke, you don’t see executive functioning being front and center the way you see it in the adult literature. And it’s almost like executive functioning gets labeled as all these other things in kids and then all of a sudden becomes much more easily recognizable in adults. And I think it needs to shift down, so that it becomes something that needs to be, when you look at their motor skills, you do a sensory profile, you do this, you do that. Well, you need to do something around executive functioning. And I would say that doesn’t happen very often in my experience (OT03-E).

In addition to the use of different labels, participants noted that it is quite difficult to tease out the role of executive functioning from other contributing factors.

Interpreting a problem as an executive functioning issue requires complex clinical reasoning processes. For example, specification of task requirements must be checked, as “just because you don’t know what’s required of that task does not mean you have a planning problem” (OT04-E). In addition, determining whether anxiety is a primary condition or secondary to the disordered doing is akin to sorting out which came first—the chicken, or the egg. According to the occupational therapists in the study, considering executive functioning happens much later in the clinical reasoning process:

...in terms of your clinical reasoning--It’s not a sensory issue. It’s not a motor issue, so therefore it’s a behavior...you take the most obvious ones first...So, I think it does kind of become one of the later or the more not readily available reasons as to why this person may have that kind of – exhibit that kind of behavior or have that kind of difficulty. And if you’re trying to figure
Moreover, if occupational therapists are not attending to the reality that “maybe, you know, there’s processes other than purely physical” (OT07-B), the source of the occupational performance issue may be missed.

Occupational therapists in the study consistently reported that consideration of executive functioning within school-aged practice occurs, at best, inadvertently. For example, fine motor, gross motor, and handwriting issues “are the problems the kids are allowed to have” (OT06-E) to qualify for school-based occupational therapy services that have a “pretty narrow focus” (OT02-E) on remediation of the sensory or motor deficit. While the sensory and/or motor approaches are necessary, they may not be sufficient to respond to the complexity and depth of the occupational performance issues stemming from executive functioning issues. Considerable affect was evident when participants were expressing their perceptions of the pervasive difficulties school-aged children experience. A seasoned occupational therapist remarked that

...we’ve sold ourselves down that river by doing, you know, working on printing and so, when there is so much more a child needs to do to get to school, organizational part or all the life skill stuff (OT05-E).

Therapists are often constrained by their program mandate, which presses them to focus on specific components. The system may be “set up to not have you go there” (OT03-E). Targeting executive functioning occupational performance issues might lead to
repercussions from administration: “I bet that my case manager would say, ‘What the heck are you doing? That’s not fine-motor, sensory or gross motor?’” (OT08-B).

“Feeling Ill-Equipped”

Occupational therapists in the study consistently reported that curriculum covering executive functioning is circumscribed to cognitive issues associated with adult brain injury. So, although executive functioning is explicitly taught as part of the occupational therapy curriculum and is considered part of the repertoire of occupational therapy knowledge and skills, therapists don’t necessarily integrate or translate that knowledge base beyond that specific clinical population or recognize its relevance across both the lifespan and occupational performance domains. A recent graduate lamented that “no one told us” (OT12-B) that the kids with whom occupational therapy works would have executive functioning issues. Indeed, one participant asserted that occupational therapists with questions about executive functioning “can’t really find those answers in textbooks…executive function needs to be put within a context but they don’t have the context even” (OT04-E). Without this context, psychological reports that identify and describe executive functioning issues may go unused as their relevance to occupational therapy is unclear.

Furthermore, even when therapists do identify that executive functioning is an issue, they reported feeling “ill-equipped” (OT08-B) to address executive functioning components and performance issues. Participants described a desire for greater clarity of this “murky” (OT12-B) concept. In a similar vein, therapists reported needing more
information about what executive functioning issues might look like from a performance perspective, as well as the developmental trajectories of typical and atypical executive functioning across the lifespan. Participants described needing more information about theories, models, and frameworks that explicate executive functioning and its relation to occupational performance. One community-based therapist reflected on her experience with developing the executive functioning lens:

...having an approach to issues with executive functioning, I don’t have a framework that I refer to and I don’t even know if there is one. ... I’ve got ideas and feelings and some evidence about it. But it’s not the same as some of the other frameworks that I’ve been working with that are--there’s much more to go on..... it’s very fragmented. It’s not in a concise, and you really got to bring it all in yourself and say, “All right, this contributes, this contributes, this contributes” (OT09-E).

At present, occupational therapists do not have easily accessible tools to address executive functioning. As a result, therapists are “not comfortable carrying it through and saying, here’s how [to] assess it in an occupational context” (OT12-B) and consequently may not “include it as a goal...because [they] don’t have any tools to be able to assess their skill level or to monitor to see if it’s getting better” (OT08-B).

Therapists reported similar levels of discomfort with the types of interventions they have in their arsenal to target executive functioning performance issues. Organizational strategies such as checklists and visual timers are the mainstay of these approaches, but therapists wondered if they were little more than common sense as they “just seem so basic... I’m a highly trained professional, I shouldn’t, you know, surely, I have more to offer than that” (OT02-E). Cognitive strategies used to mediate a child’s performance on
a task garnered a similar response, as participants seemed unsure if their prompts were merely helpful or actually part of an intervention framework. An experienced therapist asserted that mediating a child’s performance through the use of cognitive strategies involved

...real strategies with real names that have real value...that kind of assistance is valid, it’s a real thing, it’s not just, you know, it’s not just how you prompted them a little bit, it’s a real thing, it’s a real cognitive, put it into a real cognitive framework (OT11-E).

The Politics of Change

Several study participants speculated that occupational therapists may be less assertive and confident than other healthcare professionals in explicitly addressing executive functioning. One experienced therapist reflected that therapists are feeling as if they need

...permission, like, this is an OT thing, but I think they get anxious or you know, you just feel like, ooh, this isn’t really my role, you know, why are you talking about this, but it is, it is the part of the whole, you are in the idea, you are in the job of improving occupational performance. Well, this is one of the things in your tool kit that you make a difference with (OT11-E).

Participants in the study also broached the notion that therapists may prefer certain approaches to practice because of a comfort level with being professionally associated with certain types of practice models, or may prefer enacting a prescriptive rather than a collaborative role with clients.

In addition, there are pressures within the practice contexts in which occupational therapists work that have come to expect a particular set of skills and interventions that
may impede the broadening of how the occupational therapists’ expertise is deployed. One occupational therapist speculated that broadening the lens to include executive functioning may create considerable resistance from educators who are used to a particular pattern of occupational therapy interventions:

...there’s an understanding out there that the OT role is going to be this, and to step in with something new might be—it would take a while for people to get on board with it, or there might be some disappointment because a lot of people really like to hear that it’s a sensory issue (OT12-B).

This creates a complex climate for incorporating an additional lens into practice. Indeed, occupational therapists who have integrated executive functioning into their practice perspective also reported tension and conflict with other occupational therapists. For instance, one participant described an experience of being directly challenged by another occupational therapist because of her recommendation to implement assistive technology as an accommodation for the student’s executive functioning performance issues at school:

“That’s not something OTs talk about.” It was—very confrontational and it was very, “What? You have no right to even address this. This isn’t handwriting!” (OT13-E).

As a result, there may be forces at play within the profession and practice contexts to maintain the status quo of traditional approaches.

**Theme 3: Learning to “see” through the executive functioning lens**

Despite the expressed need to incorporate an executive functioning lens into the occupational therapy toolkit, participants perceived that getting executive functioning on
the practice radar is a complex and multifaceted process that is an interface of learning from interprofessional relationships, clients, and professional development opportunities.

**Interprofessional Relationships**

The role of interprofessional relationships was reported to be critical to acquiring an executive functioning lens, but depended on “whether you get exposed to it or not” (OT11-E). Colleagues from education and psychology, in particular, played significant roles in enabling occupational therapists to come to “see” executive functioning, as these professions have executive functioning language, frameworks, and models. Opportunities to engage in interprofessional dialogue were described as enlightening and formative in framing occupational therapists’ thinking, allowing them to gain skills such as understanding and interpreting psychological assessment reports.

Participants also championed the transformative power of mentorship. Yet, none of the mentors referenced were occupational therapists working with school-aged children. Rather, mentors were highly experienced clinicians with knowledge and experience with executive functioning, who, as one participant noted, “have the education and who they themselves can identify that that’s what the issue it. So people that understand that piece to it, I think, how they would address things from that point of view” (OT09-E). Participants who had had access to these kinds of mentors and interprofessional relationships recognized that their experiences were exceptional and outside of what are generally available.
Working with Clients

Digging deeper to reveal the role of executive functioning seems to happen when traditional approaches do not seem to be effective in resolving the occupational performance issues with clients. Therapists reflected that their personal shifts were precipitated by “feeling like lots of the other component based bottom-up approaches are not particularly effective” (OT03-E) and that “what I was doing wasn’t making a whole lot of difference” (OT02-E). It can take just one client who “makes you think about it more... then you start to really become cognizant of it and then develop that, that sort of lens that you’re looking through” (OT07-B). Participants reported that working with clients who had Attention Deficit Hyperactivity Disorder, Specific Learning Disorder, Nonverbal Learning Disorder, and Autism Spectrum Disorder precipitated informal learning through self-study.

The occupational therapists in the study stressed that observing performance of daily occupations was essential to the process of teasing out the executive functioning performance issues. Identification of executive functioning issues is enabled through dynamic performance analysis wherein

\[\text{You start doing that questioning of what do you think you need to do and what’s going to help you and you start to just modify how you approach them and then in fact you do find out what the child’s potential performance is (OT11-E).}\]

A dynamic performance analysis approach will reveal what one participant called finding “where the glitch is” (OT13-E) and lay the foundations for the intervention plan.
Furthermore, participants reported that systematic trial of a variety of interventions can help to expose the source of the performance issue. The child will respond differently to different interventions such that “the intervention starts to explain the problem, rather than the problem the intervention” (OT04-E).

Also helpful was the opportunity to make connections between standardized assessments and real life performance. The degree to which the practice context afforded the occupational therapist the opportunity to do just that was highly variable. Participants who had worked in a number of practice contexts with school-aged children reported that working within clients’ homes laid bare the daily challenges the child and family face when managing executive functioning difficulties. Working in community settings “makes you see the reality really quickly” (OT09-E) in a way that a more defined, school-based role may not.

**Refining the Lens through Professional Development**

Several participants reported that post-graduate courses with a special education focus helped crystallize the nature of the executive functioning difficulties seen in occupational performance. Moreover, psychology coursework within pre-service or post-graduate education also proved useful in orienting the therapist around the assessment and cognitive constructs associated with executive functioning difficulties. Engaging in professional development from education or psychology helped participants learn how to translate psychological reports and educational assessments “into a summary of what this
kid might look like and what the reasons might be for the difficulties they were having” (OT03-E).

In addition to formal education, several therapists reported a range of specific models, assessments, or authors, most of whom are psychologists, as instrumental in their personal process of developing their executive functioning lens. Workshops, training opportunities, and books by psychologists such as Russell Barkley, Lev Vygotsky, Reuven Feuerstein, educators like Richard Lavoie, and speech language pathologists like Mark Ylvisaker were cited most commonly. Of particular note within the occupational therapy profession was the Cognitive Orientation to Occupational Performance (CO-OP) approach. Several participants reported that learning about CO-OP had had a transformative impact on their practice, and that they generalized this approach to the executive level difficulties many school-aged children experience. With its focus on process, the “power of that kind of an approach when you give them a way to solve problems and a way to look at their activities” (OT03-E) effectively facilitates occupational performance.

Discussion

Participants reported that issues associated with executive functioning may be tacitly addressed or attributed to sensory and/or motor frameworks, but that explicit recognition of executive functioning is important if negative secondary impacts are to be avoided. Therapists in the study also identified a series of barriers that make it difficult for occupational therapists to recognize the executive functioning issues and to target
services towards them. Key factors and opportunities were identified that have supported occupational therapists’ integration of executive functioning into their practice repertoire.

Participants described executive functioning as inextricably entwined with performance; moreover, participants associated executive functioning with a top-down, occupational perspective. Yet, executive functioning has historically been interpreted as a set of discrete skills or processes that have finite capacities, in keeping with the body functions dimension within the ICF-CY (WHO, 2007). Nevertheless, participants emphasized that executive functioning is inherent within occupational performance of complex, dynamic, and goal-directed occupations, situating executive functioning instead within the ICF-CY activity and participation dimension (Josman & Rosenblum, 2011). This conceptualization of executive functioning is in keeping with more recent occupational therapy literature that shifts the understanding of executive functioning issues from a set of performance components impaired within a diagnostic category to recognizing them as “an occupational performance problem” (Wolf & Baum, 2011, p. 43).

Affecting school-aged children in their school, family, social, leisure, and self-care occupations, executive functioning issues appear to create a compounding effect. Participants reported that being able to recognize the possibility that children and youth are struggling because of executive functioning issues is a first and critical step towards effectively supporting them. Perhaps for children struggling with executive functioning performance issues, accurate identification and labelling of the executive functioning
issues, as in the case of developmental coordination disorder, may pave the way for a shift in adults’ interpretation of a child’s difficulties, and that, with this improved understanding, parents “can move onto advocating for their child, finding early interventions that will promote adaptation and may prevent secondary consequences” (Missiuna et al., 2008, p. 28).

Despite the importance participants placed on accurate labelling of the executive functioning issues, the barriers they identified around recognizing and addressing executive functioning issues were considerable. The myriad system-level constraints described in this study impinge upon the ability of occupational therapy services to address occupational performance issues associated with executive functioning. Practice contexts, service mandates, and professional pressures shape the occupational therapy services for school-aged children, generally circumscribing the role of the occupational therapist to address fine motor, gross motor, and sensory impairment. As a result, the degree to which occupational therapists actually have latitude in enacting their scope more fully is unclear.

Furthermore, despite the emphasis within the profession on enabling occupation, participants reported feeling constrained within a variety of practice contexts. Traditional areas of emphasis on remediating performance components presumed to hinder occupational performance issues make it...
impairments will ultimately result in enhanced occupational performance. More often than not, however, such persons readily acknowledge a troubled sense that what they are doing is not what they feel they should be doing, and that they struggle with how to make a change in their practice. At worst, they feel powerless to effect change... If it is true that we have taught people who we are by what we have been doing, then ...[we should] change what we do, and teach others who we really are—occupational therapists (Fisher, 2003, pp. 193-194).

When the system frames the child in medical rather than occupational terms, therapists are “caught between providing occupation-based intervention and meeting the needs of the health care system” (Rogers, 2007, p. 10), which should align but often don’t. The system is structured for occupational therapists to not even see executive functioning, let alone address it.

Although occupational therapists feel comfortable in understanding fine and gross motor developmental milestones, participants expressed little confidence in the profession’s comfort around higher-level cognitive development associated with executive functioning. While occupational therapists may have a general knowledge base in executive functioning from their academic curriculum in adult brain injury, there are no occupational therapy resources to support therapists in developing their knowledge and skills about executive occupational performance issues among school-aged children, other than those derived from other professions, which may not be a particularly good fit. There may be psychology and education resources that prove useful, but while occupational therapists may piece together resources over time that support their clinical reasoning, there is virtually nothing within occupational therapy for occupational
therapists that speaks directly to executive functioning and its effect on occupational performance for school-aged children.

Furthermore, interprofessional resources are also limited. Many of the occupational therapists in the study had outstanding access to interprofessional relationships that played a critical role in making the role of executive functioning salient within their practice. Despite the knowledge that health professionals need a variety of mentors to support their professional development (Higgs & Titchen, 2001; Rappolt, Mitra, & Murphy, 2002), the vast majority of occupational therapists working with school-aged children have no such access. Service delivery infrastructure allowing access to peer or interprofessional mentorship is quite constrained for school-based therapists who are often independent contractors working on their own at a variety of school sites; community agencies, academic institutions, and private practice settings allow a greater latitude in the scope and breadth of the occupational therapy role, but constitute the minority of therapists.

These kinds of multi-level tensions participants described mean that changing the perception of the nature and breadth of the occupational therapy role with children and youth may elicit resistance, both within occupational therapy as well as across sectors. The vulnerability created through change may account for some of the internal politics occupational therapists reported, in keeping with reports that occupational therapists who deviated from the traditional perception of the occupational therapist role experienced “negative sanctions” and “hostility” from peers, perhaps because they were “not
supportive of one another in attempts to further their own careers and professional standing” (Griffin, 2001, p. 31). When working to develop new opportunities within a role, significant system obstacles can hinder change and new learning (Higgs & Titchen, 2001; McCluskey & Cusick, 2002). Change disrupts the equilibrium within the system, and predictable and familiar expectations, values, and attitudes comprise the status quo (Piderit, 2000). Simmons Carlsson likens the preference to maintain traditional practice patterns to a “rut” that is “all too often hard to break out of because we so know the way of it; frequently cemented because people expect us to be in that rut” (2009, p. 6).

**Limitations**

A variety of sampling strategies and recruitment sources were used, and several potential expert and multiple benchmark participants declined to participate. Occupational therapists who opted to participate may represent occupational therapists who are aware of the need to recognize and label executive functioning performance issues, so the full breadth of perspectives within the profession may not be adequately represented. While participants were drawn from multiple geographic regions, inclusion of participants from all provinces and territories might have allowed for further transferability of the findings, as the difficulties reported in school-based service delivery may be a function of specific regions, and not necessarily generalizable to other counties, school boards, or provinces.
Conclusion

Occupational therapists working with school-aged children and youth perceived that occupational performance issues associated with executive functioning are poorly recognized and addressed. Occupational therapists often do not feel competent to adequately address the executive functioning needs of children and youth, with few options for continuing occupational therapy education to shore up their knowledge and skills. So, although occupational therapists have a solid foundation knowledge of executive functioning and address it in specific adult and child populations, they have both a perceived and real lack of preparation to employ that knowledge of executive functioning as it relates more broadly to the less clearly defined areas of occupational performance of children and youth. To develop the executive functioning occupational performance lens, occupational therapists can learn to “see” executive functioning, typically through interprofessional relationships with educators or psychologists, learning from clients, self-study, and post-graduate courses. There are system-level and professional barriers posing challenges to occupational therapists who move to inject executive functioning awareness into their practice. Occupational therapists working with school-aged children do not have access to an occupational therapy model that might help facilitate the integration of executive functioning into occupational therapists’ practice radar. A way of understanding what knowledge and skills are required to effectively and accurately intervene with school-aged children is needed in order to mitigate the pervasive effect of executive functioning issues on occupational performance.
Chapter 5

Development of occupational therapy competencies to enable executive occupational performance in school-aged children

Abstract

Purpose: To identify and describe key occupational therapy competencies needed to enable occupational performance in school-aged children and youth with executive functioning issues. Methods: A multi-method competency development process was used to converge data from a scoping review, in-depth qualitative interviews, and focus groups. Results: The Competencies in Context Model was developed to frame the gaps, tensions, and practice context issues occupational therapists face when shifting their lens to explore the effect of executive functioning on occupational performance with children and youth. Sixteen key competencies for occupational therapists were identified and described for this emerging role, organized under broader professional assessment, intervention, knowledge acquisition, and knowledge translation competency categories. Conclusions: Existing occupational therapy competency descriptions for occupational therapy with school-aged children and youth do not adequately recognize or address executive functioning deficits and their pervasive effect on occupational performance. The competency model and framework evolved through this research fill a void in current occupational therapy resources, and have implications for professional preparation and development.
Keywords: children, youth, executive functioning, competency model, competency framework

Introduction

Occupational therapists working with children and youth have traditionally interpreted occupational performance issues through sensory and/or motor lenses. Consideration of executive functioning and its effect on occupational performance has not been well integrated into the standard practice repertoire. A recent scoping review on executive functioning in the occupational therapy literature (see Chapter 3) revealed that executive functioning is a critical factor in occupational performance across the lifespan. Executive functioning is understood as a set of processes including planning, organizing, and self-monitoring that enable an individual to execute novel, complex, and dynamic occupations. In these respects, executive functioning is implicit and inherent in the performance of occupations and is of the utmost relevance to occupational therapists working from an occupation-based perspective. Although occupational therapy has historically associated executive functioning difficulties with brain injuries in adult populations, a broader understanding of executive functioning is increasingly percolating through the literature and clinical practice that considers executive functioning to be developmental, critical to performance, and applicable to clients outside of narrow diagnostic traditions.
Qualitative research with occupational therapists working with school-aged children and youth (see Chapter 4) exposed clear difficulties in learning to “see” executive functioning, which is often obscured from view by the traditional and necessary lens of the sensory and motor approaches. Therapists reported that they had not automatically extended their academic knowledge of executive functioning to children and youth, and felt ill-equipped to address executive functioning even if they had detected it as a contributing factor to the occupational performance issue. Occupational therapists who had come to include it within their practice toolbox had post-graduate education and interprofessional opportunities that clarified the relevance of executive functioning to the difficulties their clients were experiencing. However, the research suggested that these opportunities are not generally available to occupational therapists working with children, who struggle to broaden their practice lens given the dearth of occupational therapy-specific professional development resources on executive functioning and the service mandates that constrain their practice.

Rather than the historic emphasis on reducing symptoms and impairment, services for children are increasingly expected to focus on strengths, function, and building resiliency within children and their families (Huang, Macbeth, Dodge, & Jacobstein, 2004). This requires workforce competence in the provision of developmentally sensitive services within family-centred models (Hoge, Morris, et al., 2005). If occupational therapists are to develop their competency in naming, framing, and addressing executive functioning occupational performance issues, they need a conceptual model and a
framework, not currently available from an occupational perspective, to support and
direct them. Through the development of a competency model and framework, this
research seeks to articulate the knowledge, skills, and abilities required for occupational
therapists to facilitate occupational performance when working with children and youth
who experience executive functioning issues. The primary research question was, “What
are the key competencies required by occupational therapists to enable occupational
performance with school-aged children and youth who experience executive functioning
issues?”

**Methods**

**Design**

Identifying the competencies required for specific professional roles requires a
systematic process of competency framework development (Mirabile, 1997). A
competency model is a “conceptual framework or organizing scheme that details the
competencies that are required for effective performance” (Hoge, Tondora, et al., 2005, p.
520). The format of a given competency model is a function of what it is intended to
elucidate and how it will be applied (Marrelli et al., 2005; Mirabile, 1997; Shippmann et
al., 2000; Storey et al., 2002). The purpose of this competency framework is to identify
and describe the key competencies required by occupational therapists working with
children and youth who have executive functioning performance issues. The key steps
involved in the competency framework development were 1. literature review and
interviews; 2. data converging and analysis; and 3. competence modelling (Chen, Krupa, Lysaght, McCay, & Piat, 2012).

Based on variables Shippmann and colleagues (2000) described to evaluate the rigour of a competency development process, the design of this study well exceeds levels typical for its design and intended purpose (see Table 5-1).

Table 5-1. Competency framework development rigor

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rigor level of current study</th>
<th>Typical level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of investigation</td>
<td>High. Variable and logically selected mix of multiple methods used to obtain information.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>→ in-depth individual interviews, focus groups, scoping review</td>
<td></td>
</tr>
<tr>
<td>Type of descriptor content collected</td>
<td>High. Variable combination of multiple types of information collected.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>→ qualitative interview and focus group data, scoping literature data</td>
<td></td>
</tr>
<tr>
<td>Procedures for developing descriptor content</td>
<td>High. Information collected from content experts; logically developed sampling plan with a comprehensive and representative sample.</td>
<td>Medium</td>
</tr>
<tr>
<td></td>
<td>→ critical case, snowballing, and stratified purposive sampling strategies</td>
<td></td>
</tr>
<tr>
<td>Content review</td>
<td>High. Member checking, research team review, focus group feedback.</td>
<td>Medium</td>
</tr>
<tr>
<td>Documentation</td>
<td>High. Detailed and systematic dissertation</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Although subject matter expert opinion is often considered adequate for top-down development of a competency framework (Roe, 2002), collaboration among stakeholders, including professionals and service users, is critical to the successful development of a competency framework that has meaning and relevance to its end users (Dewing &
Traynor, 2005; Storey et al., 2002). Without such collaboration, efforts to develop competency frameworks may result in the perception that the “call to action” is seen as a “call to arms,” evoking apprehension (Hoge, Morris, et al., 2005) as it may be “taken as a criticism or as a threat to those responsible for the status quo” (Hoge, 2002, p. 313).

As traditional knowledge creation and passive dissemination efforts are now known to be insufficient for operationalizing new knowledge (Straus et al., 2009b), a collaborative knowledge translation approach between knowledge developer and knowledge users provides the foundation on which the competency framework can be effectively based. This indicates a bottom-up approach to competency framework development. Knowledge translation is designed to “address the gap between what is known from research and knowledge synthesis and implementation of this knowledge by key stakeholders with the intention of improving health outcomes and efficiencies of the health care system” (Graham et al., 2006, p. 14). Developing a competency framework for occupational therapists that is useful, meaningful, and relevant requires that it respond to the needs and priorities of occupational therapists in practice settings, adequately considering the clinical complexities and real-life institutional and political issues at play (Lomas, 2009). Competencies specific to the professional role emerge from the data, without pre-existing competency labels; this process is particularly useful to identify competencies for expanding roles (Robinson, Sparrow, Clegg, & Birdi, 2007), as is the case with widening the occupational therapy lens to incorporate executive functioning.
Sample

Sample selection for competency framework development demands the use of multiple groups, as well as a sample that is representative (Marrelli et al., 2005). To ensure a broad representation of perspectives on the required competencies, three categories of perspectives — expert, benchmark, and stakeholder (Marrelli et al., 2005; Shippmann et al., 2000) — are required to contextualize the competency framework. Critical case and snowball sampling strategies (Patton, 2002) were used to recruit experts — occupational therapists who have worked with school-aged children in settings associated with executive functioning issues, such as psychiatry departments or private practice emphasizing learning or attention issues, or who have worked in school-based services for more than 5 years. Benchmark participants, identified as occupational therapists who did not meet the expert criteria as well as professionals who have worked with expert occupational therapists, were recruited through stratified purposive sampling to provide the perspective of the referring clinicians and the context for the system in which occupational therapists work. Stakeholder participants are children and/or their parents who have experienced occupational performance issues associated with executive functioning issues and have also received occupational therapy services. Stakeholder participants were recruited through local organizations using purposeful random sampling.

The competency framework development literature for this type and scale of project describes a minimum sample of 5 to 9 participants for each of the three in-depth
interview participant categories (Hendry, Lauder, & Roxburgh, 2007; Maltby, Kristjanson, & Coleman, 2003; Miller et al., 2001; Shippmann et al., 2000; Whitcher & Tse, 2004; Wing Yan Man, 2006).

**Data Collection**

To provide a triangulated perspective, data collection involved three separate methods (Marrelli et al., 2005).

1. A scoping study of occupational therapy literature and executive functioning was completed to discern how the literature describes executive functioning, exploring the literature from 1980 to 2011 (see Chapter 3).

2. In-depth qualitative interviews were completed with 25 participants. Thirteen of these individual interviews were completed with occupational therapists (see Chapter 4); an additional 12 interviews were conducted with a broader range of benchmark and stakeholder participants, including educators, parents, children, child psychologists, and a child psychiatrist. Interview guides (see Appendix F) differed across the participant categories, but included use of the critical event technique commonly used in competency framework development (Robinson et al., 2007). Participants were asked about critical events that either positively or negatively affected their thinking, such as events or experiences “that really made a difference in client outcomes; a situation or time that was memorable or particularly demanding; or an experience that taught them something new, so that their subsequent practice was changed in some way” (King et al., 2007, p. 226).
Questions such as “Can you describe how you came to incorporate executive functioning into your practice” and “Give me an example where the occupational therapist ‘got’ the issues you/your child was experiencing” were used. Prompts were used to probe participant responses, such as “How did that change the way you practiced?” and “If you could go back to when you were starting out as a new therapist, what kinds of knowledge and skills do you think you’d most like to have?”

3. Occupational therapy expert focus groups were conducted to obtain feedback about the competency modelling and associated framework (see Appendix G for material used with focus groups) so that it could be further refined. Two of the occupational therapists who participated in individual interviews also participated in focus groups.

Data Analysis

To develop the competency model and assemble the competency framework, a combination of inductive and deductive analysis is needed (Getha-Taylor, 2008). Data analysis is guided by the need to answer the specific research question about required competencies, in which competency components of knowledge, skills, and abilities create an a priori structure to the analytic process. However, it is critical that emergent themes can evolve from the data despite the loose a priori frame. This matrix approach to analysis allows for iterative inductive approaches to “inform and refine top-down,
deductive ones…[to] significantly broaden the scope of the conclusions” (Chiaburu & Gray, 2008, p. 306).

To these ends, an analytic framework approach to analysis was selected to converge and analyze the data from the scoping review, qualitative interviews, and focus groups. Framework analysis “starts deductively from pre-set aims and objectives” like the identification of key competencies while concomitantly reflecting the “accounts and observations of the people studied (that is, ‘grounded’ and inductive)” (Pope, Ziebland, & Mays, 2000, p. 116). Framework analysis is generative and dynamic, offering a systematic and comprehensive analytic method to converge volumes of qualitative data. Ritchie and Spencer’s (2002) five key stages to qualitative framework analysis were followed:

1. Familiarization required immersion in the data;
2. Identifying a thematic framework began with open coding and note taking of emergent and recurrent themes and issues during familiarization, abstraction and conceptualization. A rough framework was then drafted around the a priori competency labels (knowledge, skills, and abilities), which was then applied to all other data and refined to respond to emergent and analytic themes;
3. Indexing involved systematic application of the thematic framework to all data through line-by-line labelling;
4. Charting used abstraction and synthesis to group together labels applied to meaning units in indexing. Charts were developed for each key competency; and
5. Mapping and interpretation of the data as a whole was iteratively completed to map the range and nature of the core competencies.

Once the mapping and interpretation of the data were complete, competency modelling proceeded so as to show the relation between competency constructs (Roe, 2002), and competencies were organized into user friendly clusters in the resultant competency framework (Hoge, Tondora, et al., 2005; Marrelli et al., 2005). Member checking of the competency model and framework was used to ensure rigour, with feedback from the member checking process used to refine the evolving model and framework.

**Findings**

The competency development process converged data from the scoping review on executive functioning in the occupational therapy literature with qualitative individual and focus group data. The scoping review included 49 sources, which were mostly peer-reviewed research articles. Across all participant categories, 25 individual participants were interviewed (see Table 5-2 for category distribution). In addition, two focus groups, were completed at 2 sites, with 3 participants in each. All participant quotations described in text will be italicized, and referenced according to the participant’s type.
### Table 5-2. Individual participant category distribution

<table>
<thead>
<tr>
<th>Category of Participant</th>
<th>Type of participant</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expert (n=14)</td>
<td>Occupational therapist [OT-E]</td>
<td>14</td>
</tr>
<tr>
<td>Benchmark (n=11)</td>
<td>Occupational therapist [OT-B]</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Educator [ED]</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Child Psychologist [PSY]</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Child Psychiatrist [MD]</td>
<td>1</td>
</tr>
<tr>
<td>Stakeholder (n=5)</td>
<td>Parent [CT-P]</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Child [CT-C]</td>
<td>2</td>
</tr>
</tbody>
</table>

Data convergence and analysis integrated the findings across all data sets (see Table 5-3 for key themes from each data set).
### Table 5-3. Key themes across data sets

<table>
<thead>
<tr>
<th>Source</th>
<th>Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scoping Review</strong></td>
<td>• Defining executive functioning</td>
</tr>
<tr>
<td></td>
<td>• Executive functioning and occupational performance and engagement</td>
</tr>
<tr>
<td></td>
<td>• Diagnoses associated with executive functioning</td>
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<tr>
<td></td>
<td>• Assessment</td>
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<td>• Intervention</td>
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<td><strong>Individual Interviews</strong></td>
<td><strong>OT Qualitative Sample</strong></td>
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<td></td>
<td>• Need to “see” executive functioning</td>
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<td></td>
<td>• Barriers to “seeing” executive functioning</td>
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<td></td>
<td>• Learning to “see” executive functioning</td>
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<tr>
<td><strong>Educator, Child Psychologist, &amp; Child Psychiatrist Sample</strong></td>
<td>• Understanding executive functioning and its effects</td>
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<td></td>
<td>• Breaking things down</td>
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<td>• Working at the level of the environment</td>
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<td>• Learning from one another</td>
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<td>• Professional roles</td>
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<td><strong>Parent &amp; Child Sample</strong></td>
<td>• System navigation</td>
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<td>• Making things explicit</td>
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<td>• Understanding context</td>
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<td>• Collaborative response to performance priorities</td>
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<td><strong>Focus Groups</strong></td>
<td>• Modelling executive occupational performance</td>
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<td>• Factors amenable to change</td>
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<td>• System issues</td>
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**Competency Modelling**

Through data convergence and analysis, three key contextual factors emerged—system, client, and occupational therapist—that provide the basis onto which the
competencies can be mapped. Derived through knowledge translation strategies, the meaning and relevance of the competencies are enhanced for the occupational therapist end user by rooting the competency model in the context of the occupational therapist working with school-aged children and youth. Contextual factors include a narrow practice mandate in which a holistic occupational focus is compromised, clients develop negative secondary issues, and occupational therapists are frustrated by limited exposure to executive functioning mentors, resources, tools, and knowledge. The Competencies in Context Model (see Figure 5-1) offers a visual representation of contextual factors and the competencies to which they respond. Competencies do not map back to discrete contextual factors but instead offer an integrative response to multiple factors. A table of exemplar quotations follows every section of the model description to demonstrate its grounded relationship to the interview, focus group, and occupational therapy literature data.
Figure 5-1. Competencies in Context Model.
Contextual Factors

System

Occupational therapy with school-aged children who have executive functioning issues occurs within a variety of practice contexts. Occupational therapists may work within hospital-based clinics, as consultants within school-based services, or as private practitioners. Generally, hospital-based therapists may not be permitted to operate outside of the physical hospital space, school-based occupational therapists may be restricted to working within schools, and private practitioners may not be allowed to see clients at their schools. This reality is captured by one of the focus group participants, who pointed out that occupational therapists “may not have the opportunity or latitude to look at the client in other environments or places” (OT14-E). For each of these groups of therapists, the broader health care and education systems constrain where they can work with children and which issues they can target.

In addition to the physical location of the service delivery, the systems in which therapists work have mandates that define the breadth of the services they deliver. For example, the occupational therapy role in school-based services is generally perceived to address sensory and/or motor performance components, with a view to “fixing” deficits through remediation efforts, typically through withdrawal service. One experienced school-based therapist summarized the school’s expectation of the occupational therapist: “You know, do your voodoo and throw them back. Do your magic and then throw them back to the class” (OT10-E). Executive functioning performance components and
Executive occupational performance issues are normally not addressed across occupational therapy services for school-aged children (Cermak & Maeir, 2011; Josman & Rosenblum, 2011; Rodger, Daley, Hughes, & Ziviani, 2005).

There are also interprofessional system factors at play. Participants across professions articulated the need for and benefit of complementary perspectives. However, the systems in which occupational therapists work impede this synergy such that collaborative work with a psychologist, for example, would be considered “atypical” (OT 15-E). While occupational therapists may share common skills and knowledge with both educators and psychologists, the overlap can lead to concerns about role boundaries and professional encroachment. Occupational therapists may also feel anxious about looking at an area of performance with which other professions may have historically been associated. See Table 5-4 for exemplar participant quotations.
Table 5-4. System contextual factor exemplar quotations

<table>
<thead>
<tr>
<th>Exemplar Quotation</th>
<th>Data Source</th>
</tr>
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<tbody>
<tr>
<td>“in the neuromuscular clinic, I had a structure where it didn’t allow me to see some of it because it was more a consultative service where I was in to ask the questions I needed to ask… if there was any issues with the chair, or did they need a piece of equipment.”</td>
<td>Interview: OT07-B</td>
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<tr>
<td>“I don’t think it was necessarily the OT’s fault because what she was brought in for is what she is focused on and that’s what she has been dealing with. So what she was brought in for was the pencil grip.”</td>
<td>Interview: CT-P 27</td>
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<tr>
<td>“I think it calls into question all sorts of other things like so -- how is it that we actually view disabled kid -- you know, kids in this case? How do we view kids with disabilities as kids that need to be fixed? Yeah, often I think that would be true. And what does that say about how we view disability and how we view kids that are different from other kids? I mean, I think we like to think -- you know, oh, we value everybody, we value all these different abilities, but then, what is it we’re spending our time doing?...We’re still going to try to fix you and make that problem go away.”</td>
<td>Interview: OT03-E</td>
</tr>
<tr>
<td>“there’s a perception that children with ADHD are not really, like, OTs don’t work with those kids…we certainly in school health would never get referrals that were ADHD only. If they had motor problems and ADHD, they could come our way, but if they had motor problems, okay, that’s OT.”</td>
<td>Interview: OT02-E</td>
</tr>
<tr>
<td>“New school-based therapists are turfed out there all by themselves and your—your university education just gives you a start. And you –if you are by yourself, who’s mentoring you? And that’s I think, really—that’s scary and problematic”</td>
<td>Interview: OT05-E</td>
</tr>
<tr>
<td>“And for the school based OT, I think it’s all that harder. It’s the same thing for the school based psychologist because they are working in isolation too. And it’s, you know, you read somebody else’s report and then know if it’s really unhelpful and try to track down the person in real life A, there is no time. And B, the geography of school based work is such that it’s really hard to be in the same place in the same time.”</td>
<td>Interview: PSY22</td>
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</table>

Client

Executive functioning is required to engage in dynamic, complex, and goal-oriented activities. One occupational therapist summarized the scope of executive functioning’s influence: “executive functions are just a part of daily life and making
things happen” (OT15-E). In addition to specific occupational performance issues identified in the literature, individual interview data was rife with descriptions of the significant and pervasive occupational performance issues linked to executive functioning (see Table 5-5). At home, families struggle with the organizational deficits of children and youth who cannot meet age level expectations for maintaining their things, following routines, and completing assignments and chores. With social and leisure occupations, impulsivity and working memory issues translate into problematic difficulties in taking turns, following rules, and dealing effectively with elevated affect. The emotional and behavioural regulation issues associated with executive functioning issues can wreak havoc on community interactions. In addition, these executive occupational performance issues are seen clearly in the academic domain, where students struggle with math, reading, and writing because of difficulties in attending to details, organizing their time, thoughts, and materials, and doing larger projects. Producing written work is particularly difficult for students with executive functioning issues as it simultaneously draws heavily on multiple aspects of executive functioning.

Moreover, school-aged children and youth who have executive functioning issues experience variability in their performance. Executive functioning is “not a static thing. It changes, even over the course of the day, or they can do it one day but not another” (OT06-E). This can be confusing to adults interacting with the child, as there is a tendency to assume that a child’s skills and capacities are consistent across domains, and that previous performance is a reasonable indicator of future performance. Consequently,
when a child has strong verbal skills but produces written work that is incongruous with that verbal fluency, for example, it is common to misinterpret that gap as an expression of laziness, wilful disobedience, and/or moral failing.

In fact, participants reported that, although these misinterpretations are pervasive, children with executive functioning issues work hard, often by necessity more so than their peers. Unfortunately, those efforts may be ineffective and inefficient, resulting in a poor yield and undesirable outcomes. Furthermore, children and youth with executive functioning issues struggle to discern the relationship between strategy and outcome. With these lower levels of self-awareness than their typically developing peers, the source of their difficulties eludes them. Self-awareness is “critical to judgement, safety, and independent performance in all areas of occupation” (Cermak & Maeir, 2011, p. 262) so that the child can understand the source of difficulty in occupational performance. Without adequate self-awareness, it is challenging to make changes to enhance performance and outcomes.

When children and youth with executive functioning issues experience a wide range of occupational performance issues that are not recognized or addressed, they are likely to withdraw from problematic occupations and experience lower self-efficacy than their age-mates. Their efforts do not result in intended or desirable outcomes or products, lead to frustration, and indeed draw unwanted attention, so they eventually stop expending the effort. The disengagement process can begin at a young age when the expectations outstrip a child’s capacity to be successful. With curriculum expectations
around written communication ramping up from grade 3 to 4, students may “now experience failure and give up” (PSY18) in the face of unremitting participation restrictions. For different individuals, those tipping points will occur across the curriculum from entry to school into post-secondary, and helplessness and hopelessness can become overwhelming.

As a result, a range of negative secondary implications evolve when executive functioning issues are not targeted. These consequences were described in the literature as well as across individual interviews. Comorbid anxiety and depression are common when children and youth are unable to do daily occupations successfully. Maladaptive behavioural patterns and social choices compound the underlying deficits, leading to school refusal, attendance issues, suspensions, expulsions, later drug and alcohol abuse, and involvement with youth justice systems. In addition, adults in their lives frequently encourage them to try harder or chasten them for not living up to their potential. Moreover, the adults who are central to the home, work, and school environments may themselves have neither well-developed executive functioning nor the knowledge about how to support its development in children.

The environment’s capacity to support the development of the child’s executive functioning may also be related to shared intergenerational difficulties in executive functioning. Healthcare providers and educators in the sample frequently suggested that it is not uncommon for a parent to also struggle with organization, planning, and self-monitoring. As a result, the parent may experience significant difficulty in modelling and
teaching executive strategies to their children. Parents may also be working outside of the home, leaving them with less time to support their children’s executive functioning development and performance of complex tasks. Furthermore, the environments in which children and youth live place greater expectations on their executive functioning abilities at earlier ages than ever before. However, they also offer infinitely more activities they might prefer, thereby creating a potentially inordinate demand on immature executive functioning.
Table 5-5. **Client contextual factor exemplar quotations**

<table>
<thead>
<tr>
<th>Exemplar Quotation</th>
<th>Data Source</th>
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<tbody>
<tr>
<td>“it can be misinterpreted as, ‘this is behavior,’ because I’ve heard that so much that they can’t mistake something that this who they are, it’s in their makeup like it can’t be interpreted as this is part of their – they’ve got voluntary control over how their – they’re not sitting still and they’re doing it on purpose, that kind of misunderstanding can lead to some big problems.”</td>
<td>Interview: OT07-B</td>
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<tr>
<td>“students with learning disabilities may show limited awareness of the usefulness of particular strategies for efficient problem-solving effective learning as well as cognitive flexibility”</td>
<td>(Josman &amp; Rosenblum, 2011, p. 229)</td>
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<tr>
<td>“He struggles with projects. So straight homework he can do fine, but for example he recently did a project and just picking the topic was very difficult. And then thinking it through with the level of depth that the teacher would expect. You know and picked a topic that was you know kind of silly and then you know he’d grow it in his head, his imagination would kind of grow it and it was just starting, you know what I mean? Like we’ll never be able to actually plan that out, you know? So again staying focused on something he can actually execute, umm -- and then umm planning it through the steps in terms of time management. Ok the project’s due in January, you need to pick a topic by this date, you need to do your reading on the topic by this date, decide on your sub-headings, you know what pictures you’re gonna have, that kind of thing.”</td>
<td>Interview: CT-P25</td>
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<td>“So, it impacts on relationships with the family, with peers, with teachers; impacts on kind of self-awareness of being able to kind of set goals and decide what’s reasonable for you and schoolwork, being able to complete tasks, so chores, you know, family functioning, community, being out in the community. I think it cuts across every element of life.”</td>
<td>Interview: PSY22</td>
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<tr>
<td>“They produced with huge cost to themselves, like, cost for time, you know, extraordinary amount of time, extraordinary amount of effort, extraordinary amount of mental and emotional work. So, it’s a huge cost to them. Yeah, and so, these are the kids that worked themselves to depression or anxiety or to failure.”</td>
<td>Interview: PSY18</td>
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<tr>
<td>“seeing the same things in family members that bring the kids, so that recognizing that, a lot of these things that kids learn, they learn through modeling or they develop through modeling and these parents themselves have the same difficulty so the modeling of the kids, I am seeing are getting, is not going to get them all the way. So, they have -- they probably have the executive functioning or the difficulties themselves, but they also can’t access the development of coping skills because there is not a sufficient enough or appropriate enough modeling in the environment as well”</td>
<td>Interview: MD21</td>
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</table>
Occupational Therapist

Occupational therapist participants reported poor access to executive functioning resources within occupational therapy curricula, professional development opportunities, and peer networks (see Table 5-6 for exemplar quotations). Although executive functioning information is a staple in the occupational therapy curriculum, it is typically contained within adult brain injury units. In one expert focus group, all occupational therapists concurred a comment one participant made: “Most OT’s don’t have the skill set, the knowledge around all of this stuff” (OT15-E). Therapists generally do not connect executive functioning to occupational performance for either typically or atypically developing children. Rather, most occupational therapists who have had such opportunities often described the experience similar to this therapist: “It was just because I happened to be in the right place at the right time. I was fortunate” (OT14-E). Even when occupational therapists suspect that there is “something else” (OT11-E) affecting occupational performance, participants consistently reported that most occupational therapists have little exposure to opportunities in which they would learn about executive functioning. Even if occupational therapists learn how to “see” executive functioning, they are thwarted by a paucity of resources, tools, and professional development opportunities developed by and for occupational therapists. Moreover, there are no occupational therapy models or frameworks that can support clinical reasoning around executive functioning occupational performance issues among school-aged children and youth.
Feeling ill-equipped to address executive functioning and struggling to make the connection between occupational performance issues and executive functioning deficits, occupational therapists working with school-aged children typically do not explicitly consider the role of executive functioning in enabling occupational performance. As a case in point, one focus group occupational therapist reflected on her own situation: “I don’t feel like I have the skills…I’m not saying I shouldn’t do it, but I don’t. It isn’t enough a part of what I do” (OT15-E). Many occupational therapy participants reflected back on having limited awareness of executive functioning within their clinical practice with school-aged children, tending to focus on the sensory and/or motor contributors to occupational performance because they didn’t realize that executive functioning “was also a player in the OT realm” (OT12-B). As a result, executive functioning isn’t generally considered within the clinical reasoning process. Unlike the motor milestones and reflex maturation timelines with which occupational therapists are familiar, they do not have the same knowledge about developmental trajectories of executive functioning, its relationship to mental health issues, or its association with common disorders of childhood.
Table 5-6. **Occupational therapist contextual factor exemplar quotations**

<table>
<thead>
<tr>
<th>Exemplar Quotation</th>
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<tr>
<td>“Although the literature on ADHD is replete with descriptions of children's impairment in basic and higher-order cognitive function, including executive function, there is little written the occupational therapy literature regarding cognitive approaches to intervention the children with ADHD or intervention that has specifically targeted the executive function cognitive impairments experience the children with ADHD”</td>
<td>(Cermak &amp; Maeir, 2011, p. 260)</td>
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<td>“For variety of reasons, most occupational therapists who work with children are still focusing on the body function dimension of the ICF-CY model unless on activity and participation. Some occupational therapists have begun to explore the use of cognitive approaches for intervention with the clients. Even though cognitive approaches have long been used in education psychology, the stages of problem-solving in the relevant techniques used in mediating a child's occupation performance still constitute a novelty to most occupational therapists.”</td>
<td>(Josman &amp; Rosenblum, 2011, p. 229)</td>
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<td>“I have looked at a few BRIEF assessments and tried to put them to link them to my work and, okay, well that’s there and I’m going into the school. And it is – I do – I still find it difficult. I’m still not comfortable taking, you know, ‘Okay, here’s this deficit in executive functioning,’ and going in and having that in my mind while I’m observing and trying to do my piece.”</td>
<td>Interview: OT12-B</td>
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<td>“paediatric therapists frequently overlooked [higher-level] cognitive performance components, although they are crucial to functional performance”</td>
<td>(Rodger et al., 2005, p. 344)</td>
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<td>“four years ago, when I started, I had no—even, like I didn’t even really think about executive function, or, I just knew that I was going to be working with kids who had like, major physical, progressive, you know, conditions”</td>
<td>Interview: OT07-B</td>
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<td>“Yeah, and I think that most OT’s who are working with kids never get that kind of exposure, so they’re working on their own with really peripheral access to a psychologist, going into schools working with teachers, but they’ve never had an opportunity to learn about the psychological end of it.”</td>
<td>Interview: OT11-E</td>
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<tr>
<td>“When you work in the pediatric population, it -- there are not a lot of assessments to look at executive functioning, there is not even a lot of labeling of problems as executive functioning. ...And the tools are not there -- easily accessible to -- to make it easy for therapist to have that in their toolbox.”</td>
<td>Interview: OT09-E</td>
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**Competencies**

Four clusters of competencies were synthesized through the competency framework development process to address these contextual realities: assessment, intervention, knowledge acquisition, and knowledge translation. Each of the broad competency clusters used to structure the model has 4 specific practice competencies (see Table 5-7).

**Table 5-7. Executive occupational performance competency framework**

<table>
<thead>
<tr>
<th>Professional Competency</th>
<th>Specific Practice Competency</th>
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<tbody>
<tr>
<td>Assessment</td>
<td>Recognize executive occupational performance issues</td>
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<td></td>
<td>Observe occupational performance in context</td>
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<tr>
<td></td>
<td>Participation analysis</td>
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<tr>
<td></td>
<td>Dynamic performance analysis</td>
</tr>
<tr>
<td>Intervention</td>
<td>Dynamic performance analysis</td>
</tr>
<tr>
<td></td>
<td>Occupational</td>
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<tr>
<td></td>
<td>Ecological</td>
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<tr>
<td></td>
<td>Cognitive</td>
</tr>
<tr>
<td>Knowledge Acquisition</td>
<td>Learn about executive functioning</td>
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<td></td>
<td>Access executive functioning resources</td>
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<td></td>
<td>Identify impact of environment</td>
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<td></td>
<td>Identify system resources</td>
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<tr>
<td>Knowledge Translation</td>
<td>Create a context to “see” executive functioning</td>
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<td></td>
<td>Help people to “see” executive functioning</td>
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<td></td>
<td>Make sense of professional language</td>
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<td></td>
<td>Advocate for a broader O.T. role</td>
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Assessment

There are four competencies that fall under the broader assessment competency: observation of occupational performance in context, participation analysis, identification of executive occupational performance issues, and dynamic performance analysis.

Executive functioning deficits can only be detected when the occupation is of sufficient challenge, complexity, and novelty, involving what can be considered “executive occupational performance.” Executive functioning is intrinsically related to the execution of occupation, requiring keen observation of how an occupation is performed, not just the product or outcome of performance. In addition, contrived assessment tasks or circumstances may not yield accurate information on real-world performance.

Consequently, **observation of occupational performance** in its typically occurring context is critical to the assessment of executive functioning. In a focus group, one of the expert occupational therapists reported that “*without looking at the person doing the activity in that environment, it’s essentially a guess as to how they’re going to function*” (OT16-E). Also, observation can reveal the lack of a particular skill or behaviour, such as initiation, which is critical to executive occupational performance.

Use of an “executive functioning theoretical framework to guide assessment” (Connor & Maeir, 2011, p. S3) facilitates the explicit consideration of executive functioning’s contribution to the occupational performance issue. If they are to **recognize executive occupational performance issues**, occupational therapists need to be looking for them. Teasing out the role of executive functioning is challenging, and requires
systematic consideration of multiple factors, including the influence of the environment and client factors such as motivation and task specific knowledge. Part of that process involves participation analysis whereby the occupational therapist engages in occupation analysis that considers not only the breakdown, task specific knowledge, and sequence embedded in the occupation but also the contextual variables that may inhibit or facilitate participation, both expressed and assumed. It is, as one expert occupational therapist participant remarked, “more global than we’ve historically thought of in task analysis” (OT14-E). For example, the occupation of producing a science project may include the same generic steps, but situational variables such as teacher expectations, peer standards, and familial support may change across school subjects and grades. Participation in science project occupations may be successful or restricted depending on these situational variables.

In addition to teasing out the role of executive functioning during the observation of occupational performance, a systematic dynamic performance analysis process is necessary. Dynamic performance analysis provides a direct link to intervention by determining, through prompts, cues, and the provision of alternative ways of completing a task, what conditions are required for an individual to perform more effectively. See Table 5-8 for sample quotations that exemplify each specific competency.
<table>
<thead>
<tr>
<th>Competency</th>
<th>Exemplar Quotation</th>
<th>Data Source</th>
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<tbody>
<tr>
<td>Observation of occupational performance in context</td>
<td>“Direct observation of performance in context allows an occupational therapist to view the child’s strengths and weaknesses and to identify factors that facilitate or inhibit performance”</td>
<td>(Rocke et al., 2008, p. 529) 529</td>
</tr>
<tr>
<td>Recognize executive occupational performance issues</td>
<td>“We have these task analysis skills that we can really -- like we do have hopefully and to really use those and think about executive function, and -- okay, so -- and sort of generate different hypotheses and look for sort of evidence to sort of support or refuse that. You know, like okay, I see a kid doing this, well, maybe because they -- if they’re missing information, maybe they process information very slowly, or maybe it’s because they’re in a noisy environment, they have no selective attention to look for ways and sort of testing that out”</td>
<td>Interview: OT06-E</td>
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<tr>
<td>Participation analysis</td>
<td>“When the OT can observe and work through a day in the child’s life, work with the parents in the schools, to get a context for their activities and to figure out where their deficits are, what’s working well, what’s not working well and being able to frame it in the person-environment occupation model is exactly what works well, which is brilliant to see happen because I see the change in these kids, right?”</td>
<td>Interview: PSY18</td>
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<tr>
<td>Dynamic performance analysis</td>
<td>“I’m thinking more in terms of the dynamic assessment where you’re truly, like, it’s almost more the response to intervention kind of approach where you’re truly changing a factor and seeing what happens as opposed to just seeing the performance in context but seeing this is what I think is going on, this is what my first line of attack would be, I’m going to whatever, color code the steps or something like that and see if that makes a difference. So, to me, that’s a more fruitful approach and I would probably be more easily able to draw in some executive function things there because, or at least have them in my repertoire, strategy, checklisty kind of things to think about, what could I change, what support could I provide that might help them to sustain their effort on that task or might help them to manage their frustration level”</td>
<td>Interview: OT02-E</td>
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**Intervention**

Dynamic performance analysis identifies the features of intervention that improve performance, drawing on the dynamic concepts of mediated learning and the zone of proximal development. Feuerstein, a developmental cognitive psychologist, believed that children’s cognition was modifiable through the intentional insertion of a competent adult to ‘mediate’ between the child and the activity. Mediational approaches involve extensive use of cognitive interventions to teach children and youth “a language of thinking that they can use to make their own strategies” (OT05-E) to engage in performance across occupational domains, coaching them to improve their performance using strategies like processing questioning and bridging. Complementary to mediated learning is Vygotsky’s concept of the zone of proximal development, which constitutes the gap between what a “child can accomplish on his own and what he or she can accomplish with a more skilled partner” (Cermak & Maeir, 2011, p. 262).

Occupational therapists from both categories in the study described extending the Cognitive Orientation to daily Occupational Performance approach (CO-OP) (Missiuna, Mandich, Polatajko, & Malloy-Miller, 2001) to executive occupational performance issues. Although CO-OP was developed around developmental coordination disorder, its theoretical foundations are not specific to motor learning disabilities. Rather, CO-OP integrates Meichenbaum’s global Goal-Plan-Do-Check (Meichenbaum & Goodman, 1971) strategy as an “executive, or problem solving strategy, that trains the child to monitor his performance and self-evaluate the outcome” (Missiuna et al., 2001, p. 78).
Indeed, one occupational therapist noted that “I’m not sure that people get that CO-OP is cognitive mediation, and if they got that it was cognitive mediation, then they would take it to other populations” (OT02-E). The research literature has begun to explore the efficacy of intervention protocols like CO-OP that use a combination of verbal self-instruction and metacognitive global problem solving strategy training, concluding that it has promise and “probable efficacy” (D. Dawson et al., 2009, p. 116) to address executive occupational performance issues.

Analysis also indicates that there are benefits of **ecological** interventions that involve working with the adults who support “that child in that environment” (OT17-E). By equipping the environment with an enhanced capacity to recognize executive occupational performance issues and to mediate a child’s approach to a task, generalization and transfer of skills are promoted, which supports skill acquisition and application for occupational success. Collaborating with the adults in a child’s environments can enhance the use of accommodations that may include organizational supports such as checklists, assistive technology colour coding, agendas, day planners, and reminder systems. However, the provision of the accommodation in itself is inadequate; collaborative selection and co-development of the accommodation is important to promote the likelihood of its use. Otherwise, occupational therapists may trial “externally imposed organizational systems with disorganized kids to absolutely no avail” (OT02-E).
Occupational therapy intervention designed to address executive functioning issues is **occupationally-based**, focusing on optimizing the functional level at which a child can perform his or her occupations. One seasoned participant suggested that “we need to be able to see that there’s a bigger picture for these kids and if you get one kick at something with this kid, the pencil grasp is not the thing he’s going to remember you for” (OT13-E), a comment that was echoed throughout all qualitative interview data sets. In shifting emphasis towards the ‘bigger picture,’ there is an important balance that must be struck between optimizing a child’s potential and maximizing function, but, as a child psychologist remarked, “at some point looking at functionality and providing accommodation is really critical” (PSY22). Table 5-9 offers quotations representative of each competency.
### Table 5-9. Intervention competency exemplar quotations

<table>
<thead>
<tr>
<th>Competency</th>
<th>Exemplar Quotation</th>
<th>Data Source</th>
</tr>
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<tbody>
<tr>
<td>Dynamic performance analysis</td>
<td>“One of the critical features of the style of intervention is the way in which the therapist helps the child explore strategies, make decisions, apply the strategies and evaluate their usage. This style of intervention, called ‘mediation,’ has been used for many years in special education research and its applicable the with children with special needs has been demonstrated”</td>
<td>(Missiuna, Malloy-Miller, &amp; Mandich, 1998, p. 209)</td>
</tr>
<tr>
<td>Occupational</td>
<td>“We need to be occupationally based. That’s the only place with meaning for the children and all they need is a wise and insightful ally who will walk the path of discovery with them and know what their occupational goals are so that they can move in the right direction at the right moment and just be responsive to what the child can learn and the mental health piece of how to pick a goal and how to deal with the presumed failure that these kids experience”</td>
<td>Interview: OT13-E</td>
</tr>
<tr>
<td>Ecological</td>
<td>“If I don’t teach the people that live with him, how to help him do that, then I’m not really doing my job, right. It’s just kind of saying okay, where is this kid falling apart and how could we provide a little bit more support to help him and then when -- how are we going to know when we can take it away. Right? So, I think that’s a huge part of it, just talking about giving away our expertise I think.”</td>
<td>Interview: OT06-E</td>
</tr>
<tr>
<td>Cognitive</td>
<td>“…metacognitive training has to be incorporated to promote awareness and self-monitoring skills in intervention sessions and in a variety of situations. Strategies for planning, organizing (time, materials, ideas), prioritizing, memorizing, shifting, flexibility, and checking should be taught while adapting strategies to the child’s unique functioning style”</td>
<td>(Josman &amp; Rosenblum, 2011)</td>
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**Knowledge Acquisition**

There are multiple areas of knowledge that are required within the competency framework (See Table 5-10 for quotations that describe knowledge acquisition competencies). Central to this competency is **learning about executive functioning**.
starting with clarity around definitions. Indeed, the literature uses it as an umbrella term to capture processes such as organization, planning, and self-monitoring but also as a requirement to engage in complex, dynamic, and goal-directed occupations. A solid sense of how executive functioning unfolds in typically and atypically developing children is also necessary, along with health conditions likely to impact on the developmental trajectory of executive functioning. Knowledge of executive functioning development is critical to occupational interventions so that they can be developmentally sensitive and graded appropriately. Levels of self-awareness, self-monitoring, self-efficacy and self-regulation are bound up with this knowledge base. So too is the range of cognitive strategies in a child’s repertoire and his or her capacity to use them independently. Particularly relevant is the relation of co-morbid mental health issues to executive functioning. As one child psychiatrist commented, “If your executive functioning is poor and that’s what’s keeping you from meeting the grade, then that’s going to cause anxiety” (MD21) and affect the meaning ascribed to the occupation as well as the motivation to engage in it. This range of knowledge would afford occupational therapists a context for understanding how executive functioning deficits “affect the everyday life activities of the participant” (Wolf et al., 2011, p. 28), creating executive occupational performance issues.

Understanding executive functioning and its effects is critical to therapists trying to tease apart the nature of the occupational performance issue. One expert occupational therapist described her struggle in identifying the impact of executive functioning on
occupational performance: “It’s a big kind of amorphous thing that I’m sort of looking at and watching and thinking, ‘Yeah, he’s got all these capabilities, but he can’t harness them, so what’s going on? ’” (OT02-E). Knowledge of executive functioning and occupational performance issues can lay the foundation for determining what other systems resources may be available to children or youth, their families, and their educators. For instance, if the occupational therapist can reason that the written performance issue for which he or she was referred is not a motor issue but a function of impulsivity, and that this impulsivity is having a broader impact on the playground and in the classroom, the therapist can identify system resources that may be available to support the child, family, and educator. Examples of system resources include community agency parenting groups or professional development opportunities for educators within the local school board.

To acquire knowledge of executive functioning as well as relevant system resources, occupational therapists must access executive functioning resources. Occupational therapy participants identified mentorship as an important resource in learning about executive functioning. Mentors, especially from psychology, often have advanced knowledge of executive functioning language, models, and frameworks that inform the occupational therapy perspective, and can name “some examples of what that might look like, and here’s the accommodations you can offer your client to address that” (OT15-E). In particular, understanding executive functioning constructs used in psychological and speech language pathology reports are foundational. Mentors can help
to name and frame the executive functioning issues in ways traditionally unfamiliar to occupational therapists working with children. Additionally, participants reported that having a solid grounding in educator language and curriculum standards was critical to appreciating the ways in which those expectations draw on and potentially exceed a student’s executive functioning. As students progress through the grades, they are increasingly expected to independently organize, plan, and monitor their performance, as well as integrate multiple sources of information. Advanced coursework in education and psychology was cited as an alternate way to acquire knowledge of the fields. Reading print resources such as “simplified psychology books for parents and clinicians that really seem to be so implicit in our practice” (OT10-E) was also identified as a starting point for occupational therapists.

In addition to acquiring relevant knowledge from other professions to inform the occupational therapy perspective, occupational therapists need to understand the impact of the environment on the development of executive functioning and associated performance issues. Because mental health problems closely associated with executive functioning issues such as specific learning disability and attention deficit disorder have a genetic component, the families who support these children may in fact struggle with the same performance challenges. As a result, the modelling of executive strategies and skills may not be available in the home so that the child’s genetic predisposition to have weaker executive functioning is compounded by limited skill modelling. Moreover, as one occupational therapist suggested, classroom environments tend to “over expect self-
monitoring skills in children that are typically developing, even” (OT02-E). Educators may not realize that executive functioning skills need to be taught, and may not have received training on how to teach those skills.

Table 5-10. Knowledge acquisition competency exemplar quotations

<table>
<thead>
<tr>
<th>Competency</th>
<th>Exemplar Quotation</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learn about executive functioning</td>
<td>“It’s sort of one of those things, it’s like, ‘Yeah, I know the term, but what is it, what is it again?’ It’s one of those things that you sit down and you have to actually, like refresh yourself on, or else, it gets a bit lost.”</td>
<td>Interview: OT07-B</td>
</tr>
<tr>
<td>Access executive functioning resources</td>
<td>“It’s been learning from the other professions who have much more experience with this, specifically psychology in terms of being able to put labels on it in actual terms and give some evidence behind it.”</td>
<td>Interview: OT09-E</td>
</tr>
<tr>
<td>Identify impact of environment</td>
<td>“…that’s where we find that intervening at the systems, although with teachers around, understanding the role of executive functioning and the genetic piece or the neurobiological piece so that they can recognize, you know, if I’m asking this parent to, you know, keep track of all the stuff and remember, you know, is that fair.”</td>
<td>Interview: PSY22</td>
</tr>
<tr>
<td>Identify system resources</td>
<td>“I over and over was seeing OTs who were completely missing that the child had a reading disorder or a written language disorder or there was a language component to this that was the big impairment. He can’t write, he can’t read…. my way of dealing with it would be that I am helping people to recognize this and I am ensuring that this child has been referred for tutoring, testing, whatever.”</td>
<td>Interview: OT02-E</td>
</tr>
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</table>

Knowledge Translation

Knowledge translation demands that occupational therapists synthesize acquired knowledge so that they can adapt it in meaningful ways to the situation (Table 5-11 lists sample quotations to represent competencies). This may involve knowledge translation
with primary or secondary clients, but also across professions and administrators.

Interpersonal education is a critical knowledge translation strategy, working with the child, family, or teacher to create a context for “seeing” that the difficulties with which they are struggling are related to executive functioning. Without that context, children are at risk for being misunderstood, and families and educators will have limited motivation to create the structural changes to their environments to promote skill development and performance. It is essential that occupational therapists “elicit empathy in the teachers—so, what the kid might be going through and why they’re giving the teacher a hard time” (PSY22). According to one special educator, adults working with children need insight into “why those accommodations are necessary or why those students need support or what might work for them” (ED19).

Helping people to shift so that they can “see” executive occupational performance issues involves providing knowledge that is meaningful and relevant to the occupational performance issue in a way that names and frames the executive functioning factor. People may be dealing with a performance issue “but they do not know what it is or why” (Josman & Rosenblum, 2011, p. 224) it is happening. Once they have a “framework that helps to them make sense of it” as a legitimate source of difficulty rather than a wilful behaviour, “the turnaround in the way that they behave with the child is—is amazing” (OT03-E). Then, educators and families may be able to identify and anticipate the mismatch between the executive functioning levels of the child and executive demands imposed by certain tasks.
Families and educators struggle to make sense of professional language and reports, and to sort out what the findings or recommendations mean in the daily life of the child. Occupational therapists need to integrate information from other professionals and have a firm understanding of the constructs and language found in psychological and speech language pathology assessments and reports and educational individualized education plans. This will enable the occupational therapist to appreciate the nature and severity of the child’s deficits as well as his or her strengths. However, the ability to translate that profile into what those deficits look like, what kinds of occupational performance issues evolve, and what the practical implications and interventions may be are critical to the occupational therapist’s effectiveness in knowledge translation. An expert occupational therapist commented on the need to translate psychological reports into plain language: “Who’s going to remember the statistics and percentiles...What is the functional problem, and what does he need to do it successfully?” (OT14-E).

In addition to knowledge translation within clinical interactions, occupational therapists need to also engage in knowledge translation within their practice contexts to advocate for a wider interpretation of the occupational therapy role. Noting the recent rise in referrals that are related to executive functioning, one occupational therapist reflected: “It’s becoming asked more and more. We need to turn our attention to it” (OT17-E). Yet, despite the press to broaden the role, with narrow practice mandates bounding service delivery, occupational therapists can be challenged to enact a wider interpretation of their role. Participants reported that the larger system has limited and
inconsistent awareness of what occupational therapists with school-aged children can provide. One parent whose daughter had been receiving school-based occupational therapy remarked, “I was always thinking the OT’s job was physical, not mental. I never thought of OT doing organizational things” (CT-P27). If occupational therapists do not disseminate knowledge about occupational therapy approaches and models, the system, clients, and their families cannot be expected to widen their perception of the scope of the occupational therapy role. Moreover, while there is overlap across professions in looking at executive functioning, each profession has a unique perspective and contribution to the understanding and support of a child. However, this overlap can be a positive outcome rather than a potential professional boundary issue, but that requires occupational therapists be “confident that this is their role and that this is a real thing” (OT11-E).
Table 5-11. Knowledge translation competency exemplar quotations

<table>
<thead>
<tr>
<th>Competency</th>
<th>Exemplar Quotation</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide a context to “see” executive functioning</td>
<td>“OTs offer more that perspective, more that insight why those accommodations are necessary or why those students need support or what might work for them.”</td>
<td>Interview: ED20</td>
</tr>
<tr>
<td>Help people to “see” executive functioning</td>
<td>“Part of my job is to help parents and teachers understand what kids are developmentally capable of and what they’re not yet ready for. And to put it into -- to put it there within that context, so that we’re not just blaming the kid for being disorganized.”</td>
<td>Interview: PSY23</td>
</tr>
<tr>
<td>Make sense of professional language</td>
<td>“I interpret psych reports for families a lot…there’s a direct request really, to say I have this report but, you know, I don’t know what to do with it. It hasn’t changed my life, I’ve spent $1,500.00, and I’m really none the wiser about what do I do in the morning and I can’t get him out of bed.”</td>
<td>Interview: OT02-E</td>
</tr>
<tr>
<td>Advocate for a wider OT role</td>
<td>“There are occupational therapists who are registered professionals that should be able to do what they have been taught to do and not be told by an organization with case managers who may not know what they do, what they can do”</td>
<td>Interview: CT-P26</td>
</tr>
</tbody>
</table>

**Discussion**

Convergence and analysis of multiple types of data sources collected through multiple methods created a theoretically derived competency model upon which the executive occupational performance competency framework is structured. This rigorous bottom up approach to competency framework development is relevant and responsive to the tensions in clinical practice experienced by occupational therapists working with school-aged children and youth who have executive functioning issues.

The proposed competency framework shares features with generic practice competency frameworks for occupational therapist practitioners. The third edition of the
Essential Competencies of Practice for Occupational Therapists in Canada describes seven units of competence: assumes professional responsibility, thinks critically, demonstrates practice knowledge, utilizes an occupational therapy process to enable occupation, communicates and collaborates effectively, engages in professional development, and manages own practice and advocates within systems (ACOTRO, 2011). These are congruent with the competencies proposed in this study. For example, the clinical competency “engages in professional development” incorporates aspects of the executive occupational performance competency “knowledge acquisition.” However, such overarching professional competency frameworks are by their nature broad and encompassing to allow for diversity across practice contexts. As such, they are not intended to describe competencies that are specific or tailored to a particular clinical issue or population.

The executive occupational performance competency model and framework that have emerged through this research deepen and expand the scope of the occupational therapy role with school-aged children. They have the potential to enable occupational therapists to recognize and respond to children’s occupational performance issues associated with executive functioning deficits in ways that previous clinical competencies focusing on working with children have not. In this way, the executive occupational performance competency model can inform this emerging practice area.

Additionally, it may represent a form of advanced specialist practice that “illustrates performance of responsibilities beyond that expected of a proficient
occupational therapist” (von Zweck, 2012, p. 9). Indeed, the executive occupational performance competencies are very congruent with the changes King describes as pediatric therapists attain a level of practice expertise. King and her colleagues identified that expert therapists enact a “supportive, education, holistic, functional and strength-based approach” that emphasizes the “big picture” (King et al., 2007, p. 229) of the child in the context of his or her family. Moreover, expert therapists shift away from the role of one who prescribes a course of intervention to one who facilitates and collaborates with tailored, enabling strategies that engage the client in a dynamic fashion. Finally, expert therapists have a “broader sense of their role, which encompasses support and education as well as direct intervention, and a larger scope of practice with respect to the types of information they consider” (King et al., 2007, p. 233). Consistent with King’s findings, the executive occupational performance competency model and framework identify and describe the competencies that can enable occupational therapists to reach a higher level of expertise beyond minimum practice competency standards.

The executive occupational performance competency model and framework lay the groundwork for developing training materials to be developed to support the acquisition and implementation of the identified competencies into clinical practice settings. In their study of competencies for occupational therapy emerging practice areas, Holmes and Scaffa identified the need to provide “education and training that is specialized” (2008, p. 88) to enhance competency in emerging occupational therapy roles. The competency framework items could be developed into an observational guide or screening checklist,
or into a knowledge translation tool to communicate the broader scope of the occupational therapy’s competencies in addressing executive occupational performance issues for use with service users, other professionals, and administrators. There are also potential implications for academic curricula and how these competencies may be translated into entry-level preparation. It is unclear how many competencies, or in what level of detail, are priorities for entry-level practitioners. In fact, different levels of competency may be appropriate for different levels of education. Buys (2007) proposes separate guidelines for entry level and postgraduate training, with postgraduate training extending the skills and knowledge acquired through entry-level training.

The executive occupational performance competency framework delineates the competencies required for occupational therapists working with school-aged children. Because the competencies emerged from the Competencies in Context Model, they are integrative clusters of knowledge, skills, and abilities that are sensitive to challenges and consequences impacting the system, client, and occupational therapist in the delivery of services. However, the competencies themselves are not intended to redress organizational issues in occupational therapists’ practice contexts: “When you pit a bad system against a good performer, the system almost always wins” (Geary Rummler, as cited in Hoge, Tondora, Marrelli, 2005, p. 522). It is important to acknowledge that, regardless of the competence of the individual occupational therapist, the expression of the competence is a function of organizational variables that can facilitate or undermine
those competencies, as “competence is a necessary, but not a sufficient, condition for performance” (Roe, 2002, p. 196).

**Limitations**

Competency framework development is a dynamic process that warrants “ongoing research to further identify, define, and validate the competencies and competency characteristics for these roles” (Holmes & Scaffa, 2008, p. 89). It was beyond the scope of this project to fully validate the competency framework, or to develop item rating scales for each competency item. Development of educational and training modules, implementation, and validation are next steps; to ensure that those modules would be meaningful and relevant to the end user, another iteration of the Knowledge To Action process is required to clarify which competencies might be priorities for occupational therapists in different types of practice contexts. The competency framework delineates advanced competencies for a broadening role in occupational therapy practice with school-aged children and youth, assuming the presence of more generic competencies as well as openness and interest among occupational therapists to gain these competencies.

While the benchmark and stakeholder participant groups exceeded the recommended numbers, a greater representation of child psychiatrists, educators, and children who have received occupational therapy services could enhance the findings.

**Conclusions**

Competency modelling and framework development have become increasingly relevant within current healthcare systems. Despite the prevalence of executive
functioning issues among school-aged children and youth, no previous occupational therapy competencies target the specific and significant occupational performance issues and negative secondary implications associated with unrecognized executive functioning issues. This research offers a substantive and innovative contribution to the field, identifying, describing, and outlining 16 key competencies occupational therapists need to acquire and demonstrate when working with school-aged children. It also has implications for the development of professional learning opportunities, academic curricula, and knowledge translation tools to broaden perceptions of occupational therapy’s contribution to the health and well-being of school-aged children. This competency framework may provide occupational therapists with the knowledge, tools, and perspective they are unable to access in current occupational therapy resources that will help them to enable executive occupational performance among school-aged children and youth in the dynamic and novel occupations that increasingly constitute their lived experience.
Chapter 6
Discussion Chapter

Summarize previous findings

Until recently, occupational therapy literature has paid little attention to the concept of executive functioning. Despite the current upswing in interest, issues specific to children and youth have not been well covered. This research makes an innovative and substantive contribution that looks to merge competencies that address executive occupational performance into the repertoire of occupational therapists working with children and youth.

Executive functioning is complex. Self-awareness and monitoring are ongoing as an individual plans and executes a complex occupation while mindful of contextual issues that may impact effective performance. An individual must possess sufficient levels of attention, memory, motivation, and inhibitory control to engage in performance of complex and novel goal-directed activity. The individual must be aware of the need to engage in that activity, set a goal, develop a plan, execute the plan, and monitor the effectiveness of that plan in progressing towards the desired goal, adjusting and adapting as warranted. To develop a plan, an individual must use and apply previously acquired knowledge, generate options and strategies, anticipate consequences, organize time, materials, and ideas, sequence, and prioritize. To execute the plan, an individual must initiate execution, remain aware of the task demands and success of the efforts, maintain cognitive flexibility to shift approaches as warranted, detect errors, and problem solve. In
addition, the individual must deploy strategies, monitor and adjust strategy use, regulate behaviours, cognitions, emotions, and time use, and maintain performance until stopping when the desired goal has been achieved. While executive functioning is a multi-faceted construct, there is additional complexity involved when it involves children and youth who are in the process of developing their executive functioning.

This study involved three phases congruent with the Knowledge To Action cycle’s creation stage: knowledge inquiry, knowledge synthesis, and knowledge tools (Graham et al., 2006). The first phase of the study, a scoping review using Levac and colleagues’ (2010) protocol, explored how occupational therapy literature describes executive functioning. The results exposed the complexity of executive functioning as a construct (e.g., Gillen, 2009; Wolf, 2010), suggesting that it is understood to be both a series of executive functioning performance components (e.g., Cermak & Maeir, 2011; Korner-Bitensky et al., 2011) as well as the performance of complex, dynamic, and goal-directed occupations (e.g., Connor & Maeir, 2011; Rocke et al., 2008). Although executive functioning has been historically associated with deficits in components common within adult brain injury clinical populations, it is increasingly recognized as having a broad and pervasive effect on individuals across the lifespan (e.g., Maeir, Krauss, & Katz, 2011; Wolf & Baum, 2011), independent of pathology or diagnostic category (e.g., Gillen, 2009; Rocke et al., 2008). Assessment of executive functioning in the execution of occupation requires observation of the performance in context (e.g., Baum & Katz, 2011); by observing performance, occupational therapists are uniquely equipped to see
executive functioning issues during and through engagement in occupation. Interventions directed at executive occupational performance are rooted in metacognitive approaches for both skill development and compensatory approaches (e.g., Cermak & Maeir, 2011; Connor & Maeir, 2011).

Building on the broad scoping review that explored executive functioning and occupational therapy as a whole, this research then narrowed its focus to examine executive functioning and children and youth. The second phase of the research was a qualitative study that explored how occupational therapists working with school-aged children and youth perceive executive functioning to be understood and addressed. Using inductive qualitative content analysis (Elo & Kyngas, 2007), this research revealed the necessity and difficulties associated with “seeing” executive functioning. It also clarified the means by which occupational therapists have come to incorporate executive functioning into their clinical reasoning repertoire. Learning to “see” executive functioning involves access to interprofessional relationships that reveal the models, labels, and frameworks used to explain executive functioning within other professions, work with clients for whom bottom-up approaches are not sufficient, and interprofessional professional development opportunities. Occupational therapists feel poorly equipped to accurately identify executive functioning issues, yet alone assess or provide intervention to address them.

Converging the scoping review and the occupational therapy qualitative research, the third phase of the study integrated additional qualitative data to develop a competency
model and framework (Chen et al., 2012). Multiple qualitative methods were used to evolve the Competencies in Context Model, which identifies and describes the system, client, and occupational therapist contextual factors and the competencies that are needed to respond to them. Sixteen key areas of competency were identified and organized under 4 broad professional competency categories: knowledge acquisition, knowledge translation, assessment, and intervention. As executive functioning has not yet been systematically explored for occupational therapy with school-aged children, the competencies targeting the executive occupational performance are unique among existing occupational therapy competency sets.

When considered together, the findings of the three studies suggest several points that are important to discuss. This research explores the relationship between executive functioning and occupational performance. The nature of this relationship may be ensconced in a paradigm shift that is already underway within occupational therapy. Novel within occupational therapy, the research also frames practice competencies using knowledge translation strategies.

**Executive Functioning and Occupational Performance**

Executive functioning hits at the juncture between performance components and performance itself. It encompasses performance components such as attention and memory, but the executive occupational performance competencies shift the view to their activation in the execution of occupation. This places the emphasis squarely on the *how*—the process by which the occupation is executed—and shifts focus from the
precursors of performance to the performance itself and any associated products that performance yields. The act of doing becomes the domain of concern. The executive occupational performance competencies suggest that executive functioning needs to become explicitly one of the lenses that is actively and systematically explored in occupational therapy clinical reasoning.

Central to explicitly considering executive functioning is understanding how it challenges and aligns with occupational therapy conceptual models. Within an important model guiding Canadian occupational therapy practice, the Canadian Model of Occupational Performance and Engagement (CMOP-E) (Polatajko et al., 2007), for example, executive functioning can be located as a ‘cognitive’ person level factor as well as within the CMOP-E’s conceptualization of performance and engagement. It would seem that executive occupational performance is located in both person components and in occupational performance and engagement.

In addition to dual positioning of executive functioning within this conceptual model, executive functioning also has the potential to impact how to understand the concept of occupation itself. The CMOP-E defines occupation as an “activity or set of activities that is performed with some consistency and regularity, that brings structure, and is given value and meaning by individuals and a culture” (Polatajko et al., 2007, p. 19). Yet, if occupations are understood as involving ‘consistency and regularity’ that might be associated with habitual performance, perhaps the CMOP-E tacitly accounts for an ‘executive’ level of occupations, which by their nature are dynamic, complex, and
novel. If so, the executive occupational performance competencies detailed in this research may call into question the taxonomic code of occupational performance, differentiating between a habitual level of occupation that does not elicit executive functioning as well as the more complex executive level that does.

Moreover, the examination of executive functioning may reveal a weakness in how occupational therapy conceptualizes its domain of concern. It may be difficult to “see” executive functioning if the emphasis remains on the visible performance of the occupation, thereby rendering the relevance of executive functioning to occupational engagement invisible. This may extend to other foundational elements of occupation that relate to process such as the ‘experience’ of occupation, which is informed by psychological and emotional factors that cannot be easily observed. As such, understanding executive functioning may contribute to occupational therapy’s evolving inclusion of engagement in its conceptual models.

Executive functioning highlights the inherent polarity within this conceptual frame, which understands things as either performance components or performance. If, however, executive functioning were conceptualized as the execution of occupation, then both performance components and performance need to be considered simultaneously. This is a challenge that needs to be addressed within occupational therapy conceptual models, because as they stand they cannot account for the presence and pervasive contribution of executive functioning to both person factors and performance itself. Executive functioning highlights how these things come together at the point of execution, which is
arguably what makes it the quintessential component of occupational therapy. As a result, explicitly identifying executive occupational performance becomes paramount within occupation-based occupational therapy.

**Paradigm Shift**

Sensory and motor lenses have long been the dominant paradigms within occupational therapy with school-aged children (Block & Chandler, 2005; Cahill, 2006; Case-Smith & Archer, 2008; Chandler, 2007; Schultz, 2003). The values and assumptions that undergird the sensory and motor perspectives flow through to self-perpetuating professional activities. Professionals and funding models have become tethered to these dominant paradigms. To expand the practice toolkit to push towards an occupation-based lens that allows the executive occupational performance issues to be considered poses a potential threat to the longstanding hegemony enjoyed by developmental sensory and/or motor approaches to occupational therapy with children and youth (Hooper & Wood, 2002).

According to Kuhn’s theory of scientific revolutions (1962), new ideas are typically absorbed into the dominant paradigm through a process of assimilation. The executive occupational performance competencies, however, inherently challenge the dominant sensory-motor paradigm and may resist assimilation because they propose new ways of seeing the performance issues that the sensory-motor paradigm cannot fully explain—for example, how children can struggle to produce written composition despite adequate sensory and motor functioning. Moreover, the executive occupational performance
competencies serve to reinforce the growing top-down, occupation-based practice perspective and may in fact help to facilitate the profession’s ongoing transitioning to this new dominant paradigm. Such a refinement potentially undermines the legitimacy of the dominant sensory-motor paradigm upon which the distribution of resources within the profession and across the health care system is based. This perceived vulnerability may create dissonance within the profession. Ultimately, integrating executive functioning into occupational therapy’s conceptual models may help to enable the profession’s commitment to an integrated occupational perspective.

However, it is also possible that the executive functioning lens creates an additional and complementary perspective. Use of the lens metaphor allows the executive functioning lens that has been theoretically derived through this research to be incorporated into the occupational therapy toolkit. As such, the executive functioning lens maps cleanly onto the McMaster Lens for Occupational Therapists (Jung et al., 2007). The fine tuning process suggested in using the McMaster Lens involves swapping out lenses as needed to crystallize the therapist’s understanding of the occupational performance issue, and may support the therapist to accurately identify and address the issue. No single lens is sufficient. Rather, multiple lenses are needed to contribute to our understanding of occupational performance and engagement. In this way, the executive functioning lens may complement the sensory and motor lenses, which are necessary but not sufficient to account for the breadth of occupational performance issues experienced by school-aged children and youth.
Competency

There are few examples of occupational therapy competencies focusing on work with children. Nonetheless, there are aspects of the competencies developed here that are similar to other descriptions of occupational therapy competencies for clinical practice with school-aged children. For example, Case-Smith’s (1994) delineation of advanced skills required by occupational therapists specializing in pediatric occupational therapy—including child evaluation, communication and consultation, working with families, understanding service provision systems, and the use of assistive technology—are also captured by the proposed competency framework for enabling executive occupational performance in school-aged children. However, while the general categories of competencies are similar, the content is markedly disparate. Case-Smith’s child evaluation competency, for example, emphasizes evaluation of sensory processing and integration, as well as motor skills.

The emphasis on discrete skills or performance components is also manifest throughout the “Competencies in Pediatric Practice” unit in Kief and Scheerer’s (2001) *Clinical competencies in occupational therapy*. Again, however, executive functioning issues are rarely mentioned. Rather, observation and evaluation are explicitly geared towards these areas of intervention such as fine motor, gross motor, and visual-motor integration. Handwriting, a common area of difficulty for school-aged children living with executive functioning issues, is discussed by consideration of the required sensorimotor components, pencil grip, and sitting posture to optimize handwriting. In like
manner, *Occupational therapy essentials for clinical competence*, a lifespan overview of clinical competencies, offers occupational therapists little in the way of knowledge or skills to enable executive occupational performance. O’Brien’s “pediatric frames of reference” (2010, p. 167) and Steva’s (2010) model of practice guiding occupational therapy interventions at school fail to include cognition at any level.

A seemingly rare exception among clinical competencies for occupational therapy with children, Robnett’s (2010) chapter, “Occupational therapy interventions in the realms of cognitive, physical, and sensory functioning,” acknowledges executive skills as a form of cognition clustered with orientation, attention, memory, and metacognition. However, the interventions described are exclusively cognitive rehabilitative in their approach, focusing on the remediation or development of discrete cognitive skills.

While there are ample examples of competencies omitting executive functioning, there are aspects within the frameworks and competencies emerging for use with children that are common to the executive occupational performance competencies. Giroux and colleague’s recent study on practitioners’ perceptions of competencies required for evaluating and intervening around handwriting issues summarized 80 competency items, which included a wider range of factors such as “cognitive performance skills” (Giroux, Woodall, Weber, & Bailey, 2012, p. 70). School-based practitioners considered observation and review of work samples to have the highest priority, which is congruent with the proposed competencies’ emphasis on observing occupational performance in context. However, the focus of observation within Giroux’s study is unclear, as
practitioners rated written composition in the lowest 5 of 80 in terms of priority. The survey data suggest that occupational therapists continue to place high value on elements of handwriting such as spacing and copying; however, these lower level handwriting processes are unlikely to be of sufficient challenge to elicit executive occupational performance issues.

Just as Giroux’s study does include some aspects of executive occupational performance competencies, so too does Jenkinson, Hyde, and Admad’s (2008) framework identify organization as one of seven foundation skills for occupational performance for primary school students with special needs. Nevertheless, while they recognize its importance, there is a significant discrepancy between the average 20-page sections on foundation skills such as sensory processing, gross motor coordination, and perception, and the mere 2 pages allotted to ‘organization.’

Although the executive occupational performance competencies are distinct in their emphasis, they also appear to be unique in their grounding in the contextual realities of occupational therapy practice with children and youth who have executive functioning issues. By virtue of its knowledge translation research orientation, the competency framework development process attended to issues of meaning and relevance for the occupational therapist. As such, the competencies involve much more than identification of gaps in knowledge. While they draw on extant knowledge and tools from other disciplines, knowledge of executive functioning cannot simply be titrated into occupational therapy from other professions. These competencies are just as much about
the fundamental way in which occupational therapy understands performance, how it is assessed, and what interventions target than about understanding what executive functioning is as a construct. It’s about shifting the perspective—the lens—at a fundamental level. It requires looking at occupations and tasks in a different way to consider what the executive functioning demands are for a given occupation, and what the match might be.

**Implications**

The surge in interest in executive functioning may be a function of increased societal demand for people to have highly refined levels of executive functioning. Within the current knowledge-based economy, knowledge workers need to be able to solve new problems for which there is no singular correct answer, to engage in ongoing learning in response to changing circumstances, to independently organize time and progress towards goals, and to tolerate ongoing change (Andriessen & Johnson, 2006). These requirements draw heavily on executive functioning. Indeed, the press on executive functioning is coming at earlier ages across society:

> We are a multitasking society that requires rapid and flexible thought, expanded working memory, and abundant energy. It seems we have less and less time to get our "stuff" done. We are also a society that has become fixated on productivity and efficiency (Cox, p. 18).

With executive functioning increasingly recognized as critical to success in today’s society, this research has implications for practice and academic preparation.
Practice

Because of the “inextricable link between executive function and occupation” (Wolf & Baum, 2011, p. 43), occupational therapists have a unique capacity to address the execution of occupation across home, school, social, and community roles. The executive occupational performance competencies involve working with the environments that support the child’s performance, which is consistent with current evidence on expert practice: “There is much more to effective and meaningful clinical intervention than direct services to children” (King, 2007, p. 237). The competencies require the occupational therapist to use dynamic principles of assessment and intervention. Such approaches draw heavily on the occupational therapist’s own executive functioning, including the ability to change cognitive sets and monitor performance as a therapist to meet the intervention goals of the client (King, 2007) to implement a dynamic approach in practice.

Academic Preparation

Given that executive functioning is inextricably entwined with performance and engagement in complex occupations, it behooves the profession to incorporate knowledge, skills, and abilities related to executive occupational performance within the entry-to-practice curricula. If executive functioning were made explicit in conceptual models of occupation, it would become more accessible and tangible to occupational therapists, starting at the pre-service level. In addition, it would subsequently inform practice models. While the executive occupational performance competencies capture the
areas of competence needed to effectively address executive functioning issues in practice, there may be elements of the competencies that would be appropriate for inclusion in pre-service academic curricula. For example, knowledge acquisition concerning executive functioning definitions, associations with mental health and specific conditions, and typical and atypical developmental trajectories of executive functioning may be sufficient to lay the cognitive infrastructure for student occupational therapists, who may at a later time advance specific executive occupational performance competency skills. Learning how to competently use mediational techniques or complete a dynamic performance analysis, for example, may not be feasible during academic training, but getting those competencies onto the nascent practice toolkit may create anchors for later learning.

**Study limitations and strengths**

This thesis sought to address gaps in the occupational therapy literature with respect to executive functioning and children and youth. Each study phase built towards a rich understanding of executive functioning and occupational performance. The phased approach enhanced the rigour and comprehensiveness of the competency framework development process. While the competency framework identifies required competencies, the competencies in and of themselves are not sufficient for occupational therapists to enact those competencies. The competencies that emerged through the thesis respond to the contextual factors occupational therapists encounter in their efforts to address executive occupational performance, but it was beyond the scope of the study to
identify strategies to target system issues such as policy and funding models that affect the scope of the occupational therapy role with children and youth.

Furthermore, while some competency frameworks, especially those developed within a human resources area, delineate personal characteristics as a factor in the competencies, this study sought neither to identify nor describe the impact of personal characteristics of individual practitioners and how those might relate to enactment of the executive occupational performance competencies. Finally, differentiation of competencies into specific measurable items and development of item values and rating scales are more common when competency frameworks are developed by national professional task forces or business consultants within human resources in industry. This was not a focus of the current research.

**Future directions**

Now that the knowledge creation stages have proceeded, the knowledge product is sufficiently refined to shift into the Knowledge To Action’s action stage. The action cycle adapts knowledge products to local contexts, assesses barriers and facilitators to knowledge adoption, selects, tailors, and implements interventions, monitors knowledge use, evaluates outcomes, and sustains knowledge use (Graham et al., 2006).

Based on the executive occupational performance competency framework, the next steps in this research would be to develop an interactional educational module that provides occupational therapists with accessible professional development opportunities to acquire the executive occupational performance capacities (Hollenbeck, 2010; Marrelli
et al., 2005). The module would need to incorporate adult learning models and be designed to capture changes in the competencies (Huang et al., 2004, p. 177). The dynamic performance analysis and mediational strategies identified in the executive occupational performance competencies are also indicated for use within the professional development module structure (Lajoie, 2003). Deepening existing professional competencies with the advanced practice competencies proposed may require interactive coaching (Roe, 2002, p. 200) and mentoring (King, 2007). Furthermore, generating momentum towards adoption and implementation of the competencies at a systems-level necessitates strategic alliances with important stakeholders such as educators, psychologists, and parents.

**Conclusion**

This thesis identified and described executive occupational performance competencies for occupational therapists working with children and youth. Executive functioning is a complex phenomenon that at once incorporates executive functioning performance components as well as the performance of dynamic, complex, goal-directed occupations. Executive functioning has not been systematically explored in occupational therapy with children and youth, and this research suggests that occupational therapists have not connected their knowledge and skills concerning executive functioning to work with children. Learning how to “see” through the executive functioning lens allows occupational therapists to explicitly consider the contribution of executive functioning to occupational performance issues in addition to other lens they might typically employ.
This study makes a substantive contribution to advancing occupation-based practice with children and youth, and has advanced the understanding of the requisite competency areas. Now that the competency areas have been identified, research can shift into the action stage of the Knowledge To Action cycle. Explicitly incorporating the executive functioning lens into occupational therapy practice with school-aged children can help consolidate the shift towards occupation-based practice and support occupational performance in a world that increasingly expects high levels of executive functioning at younger ages.
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Appendix A
McCloskey’s Holarchical Model of Executive Functioning

V. Trans-self Integration
   Sense of source, Cosmic consciousness

IV. Self Generation
   Mind-Body Integration, Sense of Spirit

III. Self Control:
   Self Realization   Self Determination
   Self Awareness   Goal Generation   Long-Term Foresight/Planning

II. Self Control: Self Regulation
   Sensation/Perception Cognition Emotion Action
   Perceive   Modulate   Sustain   Interrupt   Stop   Foresee   Plan   (Short-Term)
   Focus   Select   Inhibit   Hold   Manipulate   Shift   Flexible
   Initiate   Gauge   Organize   Balance   Store   Generate   Retrieve   Execute   (Behavior Syntax)
   Face   Time   Monitor   Check   Correct

I. Self Control: Self Activation
   Awaken, Attend

Used with permission. Figure 3.1 from McCloskey, G., Perkins, L., Van Divner, B. (2009). Assessment and intervention for executive function difficulties. New York: Taylor & Francis.
Appendix B

Knowledge To Action Process

Appendix C

Ethics Clearance

QUEEN'S UNIVERSITY HEALTH SCIENCES AND AFFILIATED TEACHING HOSPITALS
ANNUAL RENEWAL

Queen's University, in accordance with the "Tri-Council Policy Statement, 1998" prepared by the Medical Research Council, Natural Sciences and Engineering Research Council of Canada and Social Sciences and Humanities Research Council of Canada requires that research projects involving human subjects be reviewed annually to determine their acceptability on ethical grounds.

A Research Ethics Board composed of:

Dr. A.F. Clark, Associate Professor, Department of Biochemistry, Faculty of Health Sciences, Queen's University (Chair)
Dr. R. Brison, Professor, Department of Medicine, Queen's University
Dr. M. Evans, Community Member
Dr. S. Horgan, Manager, Program Evaluation & Health Services Development, Geriatric Psychiatry Service, Prevalence Care, Mental Health Services Assistant Professor, Department of Psychiatry
Ms. R. Bullock, Community Member
Mr. D. Morales, Community Member
Ms. P. Newman, Pharmacist, Clinical Care Specialist and Clinical Lead, Quality and Safety, Pharmacy Services, Kingston General Hospital
Dr. W. Li, Associate Professor, Department of Pharmacology & Toxicology, Queen's University
Ms. S. Robin, Privacy Officer, ICES Queen's Health Services Research Facility, Research Associate, Division of Cancer Care and Epidemiology, Queen's Cancer Research Institute
Dr. B. Simon, Assistant Professor, Department of Anesthesiology, Queen's University
Dr. J. Saigal, WIO Professor in Psychosomatic Medicine and Psychosocial Medicine Professor of Psychiatry and Pharmacology Chair and Head, Division of Psychopharmacology, Queen's University Department of Psychiatry, Academic Unit, Quinte Health Care, Belleville General Hospital
Dr. E. Tsai, Associate Professor, Department of Pediatrics and Office of Bioethics, Queen's University

has reviewed the request for renewal of Research Ethics Board approval for the project Knowledge to Action: Developing a Competency Framework for Occupational Therapists Working with School-Aged Children and Youth Who Have Executive Dysfunction Disorders as proposed by Dr. H. Crumlin of the School of Rehabilitation Therapy, Queen's University. The approval is renewed for one year, effective February 17, 2012. If there are any further amendments or changes to the protocol affecting the participants in this study, it is the responsibility of the principal investigator to notify the Research Ethics Board. Any unexpected serious adverse event occurring locally must be reported within 2 working days or earlier if required by the study sponsor. All other adverse events must be reported within 15 days after becoming aware of the information.

Date: January 30, 2012

Chair, Research Ethics Board
Appendix D

Consent Forms

Knowledge to Action:
Developing a Competency Framework for Occupational Therapists working with School-Aged Children and Youth who have Executive Dysfunction Disorders

PARTICIPANT FACT SHEET/CONSENT FORM
EXPERT OCCUPATIONAL THERAPIST

Background Information
You are being invited to participate in a research study, funded by Canadian Institute of Health Research (CIHR). The study is aimed at developing a better understanding of how occupational therapists can enable children and youth who have executive functioning skill issues to participate successfully in the things they need to do, want to do, and are expected to do.
You are being asked to participate because:

- you are an occupational therapist who has worked with children and/or youth in a clinical setting where executive dysfunction would be common, such as in child and adolescent psychiatry or school consultant roles for more than 5 years and/or
- you have additional education in special education and/or educational psychology and/or have published related material and/or are training other occupational therapists about these issues

Description of Procedures
If you agree to participate in this study, you will be asked to participate in an individual interview. This interview will focus on your knowledge, skills, abilities, and attitudes related to working with children and youth who experience executive functioning issues. Approximately 6 months later, you will be asked to participate in a series of three focus groups. The focus groups are designed to review and validate a competency framework that will be developed from the interview data and knowledge synthesis.
Risks/Benefits
As far as we know, there are no risks involved in participating in this study. While you may not benefit directly from this study, results from this study may help to develop strategies to improve the services occupational therapists can provide to children and youth who experience executive functioning issues and may benefit yourself or other consumers in the future.

Confidentiality
All information obtained during the course of this study is strictly confidential and your anonymity will be protected at all times. Your name will not be used in the study. You will be assigned an identification number, which will be used on our study records. Data will be stored in locked files and will be available only to study personnel. You will not be identified in any publications or reports.

Voluntary Participation
Your participation in this study would be completely voluntary and you could withdraw from this study at any time, should you wish to do so. Your decision to withdraw will not affect any current or future relationships you might have with the investigator or affiliated universities or institutions. You are not obligated to answer any questions that you find objectionable or which make you feel uncomfortable.

Participant Statement and Signature Section
I have read and understand the consent form for this study. I have read the study summary. I am familiar with the purpose and procedures of this study. I have given sufficient time to consider the above information and to seek advice if I chose to do so. I have had the opportunity to ask questions which have been answered to my satisfaction. I am voluntarily signing this form. I will receive a copy of this consent form for my information.
If at any time I have further questions, problems, or adverse events I can contact:

Doctoral candidate Heidi Cramm at (613) 484-4450 or

Doctoral supervisor Dr. Terry Krupa at (613) 533-6236.

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If I have questions regarding my rights as a research participant I can contact:

Dr. Albert Clark, Chair, Research Ethics Board at (613) 533-6081.

By signing this form, I am indicating that I agree to participate in this study.

____________________       ___________________        ___________________
Signature of Participant   Printed Name of Participant      Date

____________________       ___________________        ___________________
Signature of Witness       Printed Name of Witness          Date

**Statement of Investigator**
I, or one of my colleagues, have carefully explained to the participant the nature of the above research. I certify that, to the best of my knowledge, the participant understands clearly the nature of the study and demands, benefits, and risks involved to participants in this study.

_______________________        ______________________
Signature of Principal       Date

Investigator

Please return completed consent form to:

Heidi Cramm, MA, MSc (OT—Post-Professional), OT Reg. (Ont.)

Doctoral Candidate, Department of Rehabilitation Science

Louise D. Acton Building, 31 George St., Queen’s University,

Kingston, ON  K7L 3N6

Fax: (613) 766-6459
Knowledge to Action:

Developing a Competency Framework for Occupational Therapists working with School-Aged Children and Youth who have Executive Dysfunction Disorders

PARTICIPANT FACT SHEET/CONSENT FORM

BENCHMARK PARTICIPANT

Background Information
You are being invited to participate in a research study, funded by Canadian Institute of Health Research (CIHR). The study is aimed at developing a better understanding of how occupational therapists can enable children and youth who have executive functioning skill issues to participate successfully in the things they need to do, want to do, and are expected to do.

You are being asked to participate because:

➢ you are an occupational therapist who has worked with children and/or youth in a clinical setting for fewer than 5 years or

➢ you are a psychologist, special education resource teacher, child psychiatrist, or speech language pathologist who has worked with occupational therapists in settings involving children or youth who experience executive functioning difficulties

Description of Procedures
If you agree to participate in this study, you will be asked to participate in an individual interview. This interview will focus on your perspective on how occupational therapy is effective with children and youth who have executive functioning problems.

Risks/Benefits
As far as we know, there are no risks involved in participating in this study. While you may not benefit directly from this study, results from this study may help to develop strategies to improve the services occupational therapists can provide to children and youth who experience executive functioning issues and may benefit yourself or other consumers in the future.
Confidentiality
All information obtained during the course of this study is strictly confidential and your anonymity will be protected at all times. Your name will not be used in the study. You will be assigned an identification number, which will be used on our study records. Data will be stored in locked files and will be available only to study personnel. You will not be identified in any publications or reports.

Voluntary Participation
Your participation in this study would be completely voluntary and you could withdraw from this study at any time, should you wish to do so. Your decision to withdraw will not affect any current or future relationships you might have with the investigator or affiliated universities or institutions. You are not obligated to answer any questions that you find objectionable or which make you feel uncomfortable.

Participant Statement and Signature Section
I have read and understand the consent form for this study. I have read the study summary. I am familiar with the purpose and procedures of this study. I have given sufficient time to consider the above information and to seek advice if I chose to do so. I have had the opportunity to ask questions which have been answered to my satisfaction. I am voluntarily signing this form. I will receive a copy of this consent form for my information.
If at any time I have further questions, problems, or adverse events I can contact:

Doctoral candidate Heidi Cramm at (613) 484-4450 or

Doctoral supervisor Dr. Terry Krupa at (613) 533-6236.

If I have questions regarding my rights as a research participant I can contact:

Dr. Albert Clark, Chair, Research Ethics Board at (613) 533-6081.

By signing this form, I am indicating that I agree to participate in this study.

____________________        ___________________        ___________________
Signature of Participant      Printed Name of Participant      Date
Statement of Investigator
I, or one of my colleagues, have carefully explained to the participant the nature of the above research. I certify that, to the best of my knowledge, the participant understands clearly the nature of the study and demands, benefits, and risks involved to participants in this study.

_________________________  __________________________  _____________
Signature of Principal    Date
Investigator

Please return completed consent form to:

Heidi Cramm, MA, MSc (OT—Post-Professional), OT Reg. (Ont.)
Doctoral Candidate, Department of Rehabilitation Science
Louise D. Acton Building, 31 George St., Queen’s University,
Kingston, ON    K7L 3N6    Fax: (613) 766-6459
Knowledge to Action:

Developing a Competency Framework for Occupational Therapists working with School-Aged Children and Youth who have Executive Dysfunction Disorders

Client Participant Fact Sheet/Consent Form

Background Information
You are being invited to participate in a research study, funded by Canadian Institute of Health Research (CIHR). The study is aimed at developing a better understanding of how occupational therapists can enable children and youth who have executive functioning skill issues to participate successfully in the things they need to do, want to do, and are expected to do.

You are being asked to participate because:
- you are a parent or guardian of a child or adolescent who experiences executive functioning issues and has had previous involvement with occupational therapy or
- you are a child or adolescent who experiences executive functioning issues and has had previous involvement with occupational therapy and are at least 16 years of age. If you are under 16 years of age, your parent or guardian will be asked to sign the consent form, and you will be asked to sign the assent form.

Description of Procedures
If you agree to participate in this study, you will be asked to participate in an individual interview. This interview will focus on your experiences with occupational therapy and your perspective on what occupational therapists can do to help children and teenagers do the things they need to do.

Risks/Benefits
As far as we know, there are no risks involved in participating in this study. While you may not benefit directly from this study, results from this study may help to develop strategies to improve the services occupational therapists can provide to children and youth who experience executive functioning issues and may benefit yourself or other consumers in the future.
Confidentiality
All information obtained during the course of this study is strictly confidential and your anonymity will be protected at all times. Your name will not be used in the study. You will be assigned an identification number, which will be used on our study records. Data will be stored in locked files and will be available only to study personnel. You will not be identified in any publications or reports.

Voluntary Participation
Your participation in this study would be completely voluntary and you could withdraw from this study at any time, should you wish to do so. Your decision to withdraw will not affect any current or future relationships you might have with the investigator or affiliated universities or institutions. You are not obligated to answer any questions that you find objectionable or which make you feel uncomfortable.

Participant Statement and Signature Section
I have read and understand the consent form for this study. I have read the study summary. I am familiar with the purpose and procedures of this study. I have given sufficient time to consider the above information and to seek advice if I chose to do so. I have had the opportunity to ask questions which have been answered to my satisfaction. I am voluntarily signing this form. I will receive a copy of this consent form for my information.
If at any time I have further questions, problems, or adverse events I can contact:

Doctoral candidate Heidi Cramm at (613) 484-4450 or

Doctoral supervisor Dr. Terry Krupa at (613) 533-6236.

If I have questions regarding my rights as a research participant I can contact:

Dr. Albert Clark, Chair, Research Ethics Board at (613) 533-6081.

By signing this form, I am indicating that I agree to participate in this study.

____________________        __________________
Signature of Participant        Printed Name of Participant

__________
Date
Statement of Investigator

I, or one of my colleagues, have carefully explained to the participant the nature of the above research. I certify that, to the best of my knowledge, the participant understands clearly the nature of the study and demands, benefits, and risks involved to participants in this study.

Signature of Principal

Date

Investigator

Please return completed consent form to:

Heidi Cramm, MA, MSc (OT—Post-Professional), OT Reg. (Ont.)

Doctoral Candidate, Department of Rehabilitation Science

Louise D. Acton Building, 31 George St., Queen’s University,

Kingston, ON  K7L 3N6

Fax: (613) 766-6459
Assent Form for Participants under the age of 16 years

Investigator: Heidi Cramm, Doctoral Candidate, School of Rehabilitation Science, Queen’s University

Why you are here?

The researchers want to tell you about a study about children and adolescents with executive function problems. Executive function problems affect how you do things because they can interfere with how you plan, organize, and monitor how well you are doing on things. The researchers want to see if you would like to be in this study. This form tells you about the study. If there is anything you do not understand, please ask your parent, your guardian or the study staff.

Why are they doing this study?

They want to learn more about how occupational therapists can work better with children and teenagers who have difficulties doing things they need to do because of executive functioning problems.

If you want to be in the study these things will happen:

The study will last about 3 years. You will be asked to come into the researcher’s office for 1 visit. You will meet with the researcher, who will talk to you about the kinds of things you have difficulty doing. The researcher will also ask you about how an occupational therapist may have worked with you in the past.

What if you have any questions?

You can ask questions any time, now or later. You can talk to the researchers, your family or someone else. You can call Heidi Cramm if you have any questions. You can reach her at 613-484-4450.
Who will know what I did in the study?

Any information you give to the study staff will be kept private (or secret). Your name will not be on any study paper and no one but the study staff and your parent or guardian will know that it was you who was in the study.

Do you have to be in the study?

You do not have to be in the study. No one will be mad at you if you don’t want to do this. If you don’t want to be in this study, just say so. We will also ask your parents or guardians if they would like you to be in the study. Even if your parents want you to be in the study you can still say no.

Even if you say yes now you can change your mind later. It’s up to you.

Do you have any questions?

What questions do you have?

Assent

I want to take part in this study. I know I can change my mind at any time.

______________________________ Verbal assent given  Yes □

Print name of participant

Written assent if the participant chooses to sign the assent.

__________________________  __________  __________
Signature of participant  Age  Date

I confirm that I have explained the study to the participant to the extent compatible with the participant’s understanding, and that the participant has agreed to be in the study.

______________________________  __________________   ________
Printed name of  Signature of  Date
Person obtaining assent  Person obtaining assent
Appendix E
Scoping Sample


Appendix F
Interview Questions

Expert Participant In-depth Interview Protocol
Describe how you would conceptualize executive functioning.
Can you describe a challenging or difficult clinical situation involving a student with executive functioning issues?
Think of a challenging client situation in which the outcome was perceived to be positive. What factors contributed to that positive outcome?
Now think of a client situation that was difficult that did not end as you would have hoped. What kinds of things contributed to the negative outcome? What did you take away from that experience?
Tell me about a time when you had an extremely challenging client situation.
Give me an example of a clinical situation in which you had to make a difficult decision. How do you think executive functioning issues impact children or youth in their ability to participate in typical occupations?
What kinds of knowledge does an OT need to work with school-aged children and youth who experience executive functioning issues?
Describe the kinds of skills that make an OT effective in a job working with school-aged children and youth who experience executive functioning issues.
What kinds of experiences or opportunities have been helpful in developing your capacity to enable occupational performance of students who experience executive functioning issues?
What kinds of specific training or resources have supported your knowledge development in this area?
Give me an example of when you’ve talked with another occupational therapist who has approached a client from a more traditional sensory or motor perspective. How do you
think the other occupational therapist interpreted the client’s occupational performance issues?
How do you think executive functioning relates to self regulation?
How do you think executive functioning relates to developmental coordination disorder?
How do you think executive functioning relates to mental health?
It’s been said that OTs don’t have a role in ‘academic issues’—how might you respond to that perspective?

**Benchmark Participant In-depth Interview Protocol**

1. What kinds of knowledge does an occupational therapist need to work with school-aged children and youth who experience executive functioning issues?
2. Describe the kinds of skills that make an occupational therapist effective in a job of working with school-aged children or youth who experience executive functioning issues.
3. What does an occupational therapist who works with children need to be able to do that is different from an occupational therapist who works with adults?
4. What kinds of behaviours does an occupational therapist engage in that promote the child’s occupational performance?
5. What do you in your professional capacity working with children and youth expect and need from an occupational therapist?
6. How do you think executive functioning issues impact children or youth in their ability to participate in typical occupations?

**Stakeholder Participant In-depth Interview Protocol**

1. Tell me about you/your child’s experiences with occupational therapy.
2. Give me an example where the occupational therapist didn’t “get” the issues you/your child was experiencing.
3. Give me an example where the occupational therapist “got” the issues you/your child was experiencing.
4. Looking back, what would you have wanted from your occupational therapist to help you/your child figure out how you could be successful even though you had these difficulties in organizing, prioritizing, or monitoring yourself?
Appendix G
Focus Group Materials

FOCUS GROUP PARTICIPANTS

Thank you for agreeing to participate in the focus group. This is a vital part of my doctoral research project. I have been engaged in a scoping study to explore the concept of executive functioning, and have completed 25 qualitative interviews with occupational therapists, educators, parents, children who have worked with occupational therapists, psychologists, and psychiatrists. I have used the interview data and the literature to develop an occupational model of executive functioning and have been developing the associated competency framework. It is important to me that anything I develop within my research program resonates with occupational therapists in the field and can be refined to be something that will be useful and meaningful to occupational therapists.

When I began my data collection a year ago, I had naively thought that the concept of executive functioning was a bit more straightforward than I have come to understand it. There is no clear agreement on what executive functioning is within or across occupational therapist, psychology, or education. The occupational model of executive functioning that I am proposing is an amalgam of my analysis from the literature and my interview data.

When we meet for the focus group, we will spend part of the time discussing the conceptual model, and part of the time discussing the competency framework. What follows is meant to help you get a better sense of what we’ll be discussing during the focus group:

- PowerPoint slides to give you a visual of how the occupational model of executive functioning is looking.
- Definitions of the terms used in the model, for your reference.
- Descriptions of the model and framework.
- Sample questions for the discussion.
Occupational Model of Executive Functioning
Definitions

Executive Functioning:
-goal directed doing. We can think of it as how we “get ‘er done”. Common metaphors for executive functioning include the CEO or conductor of the brain. Disordered doing occurs when the elements of executive functioning are not congruent. Executive functioning is a developmental process and can be affected by many diagnoses common within childhood (learning disability, ADHD, anxiety disorder, Asperger’s disorder, etc.)

Key factors (overlapping elements):

Task Specific Information:
-declarative and procedural knowledge.

Cognition:
-Cognition: the person’s capacity to acquire and use information to adapt to environmental demands (Lidz, 1987)
-also includes meta-cognition: how we think about our thinking, and the ability to reflect on what you know and what you don’t

Executive skills:
-these are our mental control skills, including impulse control, attention, initiation, transitioning, remembering, organization, planning, sequencing, and categorizing

Self Regulation:
-Self Regulation focuses on how we manage our arousal levels. Behavioural, affective, and cognitive regulation are all captured within self-regulation.

Circumstances (the broader circle depicting the bigger picture for the individual):

Self Evaluation
-Self evaluations include all of the self-checking/monitoring in which we engage as we pursue goal-directed doing. We need to be able to monitor our progress, recognize that we need to use a strategy, ‘connect the dots’ between concepts and situations, and use our time effectively.
Context:
-the environmental circumstances (social, institutional, cultural, and physical) in which our doing occurs, and the ways that those circumstances shape, enable, or constrain the occupational demands

Meaning:
-what the doing signifies to the individual doing it. Motivation is bound up within meaning.

Self-efficacy:
-your sense of how well your skills match the demands of a given occupation has considerable impact on how you engage in that occupation. Your historic experience of successful engagement in a particular context also impacts the meaning of the doing.

An Occupational Model of Executive Functioning
The conceptual model looks to capture the complexity of goal directed doing. Assuming that there are necessary levels of sensory/motor body structures and functions, these are necessary but not sufficient to realize successful doing. Take the example of a grade 6 boy, Kyle, who needs to complete a research project on pioneers. To understand what Kyle needs to successfully do his project, we need to consider key personal factors as well as the circumstances:

Task specific knowledge: does he know how to do the research project? Does he have the necessary procedural knowledge to pick a topic, find relevant sources, pull specific information, organize his information, draft his project, edit it, and present it?

Self-Regulation: Can he regulate his emotions when he feels stressed that he’s not progressing well?

Cognition: does Kyle have the sufficient cognitive skills to progress through the steps? Does he select a strategy to help him approach the task?

Executive Skills: can he initiate, and sustain his attention on his project? Is he easily drawn away into playing with friends or video games?
Context: is his teacher/parent supportive?

Meaning: does he have sufficient motivation? How likely does he think he is to be successful in his efforts?

Self-Evaluation: can Kyle monitor how long each step takes and how his time use is going?

Self-efficacy: does he have a sense of capacity to engage successfully in this project? Has he had previous success or frustration with these kinds of tasks?

To give you a sense of the goal of the discussion, I will be asking questions like:
Do the elements of the model make sense?
Are the elements of the model distinct?

Competency Framework
To be able to effectively intervene with children or adolescents who experience disordered doing, we need to describe the essential knowledge, skills, and attitudes of occupational therapists who successfully work with school-aged children and adolescents experiencing executive dysfunction. Such a description constitutes a competency framework (Hoge, Tondora, et al., 2005; Marrelli et al., 2005; Mirabile, 1997; Shippmann et al., 2000). Competency frameworks have been developed across all health care disciplines using different types of strategies. Developing a competency framework for occupational therapists that is useful requires that it respond to the needs and priorities of occupational therapists in clinical settings.

I will be asking questions like:

How well do the competencies frame the skills, attitudes, and knowledge that Occupational Therapists need to address disordered doing?
Think back to when you started working with as an occupational therapist. How might the model or competency framework have affected how you interpret difficulties with doing? OR What
competencies do you think a new graduate needs the most support in when it comes to issues of executive functioning?

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
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<tbody>
<tr>
<td>Task specific information</td>
<td>Task specific information</td>
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<tr>
<td>What is required of a given task</td>
<td>Participation analysis</td>
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<tr>
<td>Self-evaluation</td>
<td>Self-evaluation</td>
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<tr>
<td>Developmental levels and styles of self-evaluation</td>
<td>Supporting goal setting and tracking, time management</td>
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<tr>
<td>Self-regulation</td>
<td>Self-regulation</td>
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<tr>
<td>Developmental levels and styles of self-regulation</td>
<td>Supporting self-regulation through sensory processing interventions, behavioural programs, and cognitive-behavioural approaches</td>
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<tr>
<td>Cognition</td>
<td>Cognition</td>
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<tr>
<td>Psychological constructs, assessments</td>
<td>Translating psychological constructs into practical occupational realities</td>
</tr>
<tr>
<td>Educational curriculum demands</td>
<td>Translating educational expectations and language into practical occupational realities</td>
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<tr>
<td>Developmental levels and styles of meta-cognition</td>
<td>Identifying the Zone of Proximal Development (Vygotsky) to establish the learning potential of the child</td>
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<td></td>
<td>Mediating strategy development and refinement</td>
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<td>How to bring new concepts to the conscious awareness of the child</td>
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<td></td>
<td>Dynamic occupational assessment</td>
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<td>Self-efficacy</td>
<td>Self-efficacy</td>
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<tr>
<td>Understanding self-efficacy</td>
<td>Grading opportunities to become increasingly competent in required occupation</td>
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<td>Identify and implement accommodations to tap into strengths and allow for successful participation</td>
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Executive skills  Developmental trajectories for EF (typical and atypical)  Common points at which EF issues become salient and occupation is disrupted  Recognize the impact of EF (red flags for EF involvement)

Context  Knowledge of environment  Participation analysis

Meaning  Knowledge of motivation and meaning for the client  Creating incentives, motivation, behavioural reward systems

Doing  What is the individual trying to do?  Participation analysis  Dynamic occupational assessment  Can switch lenses  Apply alternate hypothesis

Notes:

Participation analysis: more than just task analysis, participation analysis requires that the context and meaning be considered. The provision of task specific information is not enough to allow for successful doing. For example, the grade 4 teacher’s idea of a book report may be quite a bit different from the grade 7 teacher’s. Context and meaning must be considered.

Dynamic occupational assessment: seeing the person actually do the occupation in question, and to see how and what kinds of prompts and cues mediate their learning to do it successfully.

How to coach educators and families to shift their lens: these are kids who are typically regarded as “bad” or “lazy”. We need clear and accessible language and examples of how to help adults reframe their understanding of the child and how to mediate their learning, skill development, and strategy refinement.

Use of compound interventions: For example, to support learning, we may need to use accommodations such as mind mapping software that clarifies the task specific knowledge, provides support for organization, planning, sequencing, and memory, and supports self-
regulation by grading the amount of information available and thereby reducing anxiety associated with engagement in more complex doing.

Overall assumptions:
- Occupation and participation-centred practice, emphasis on the “big picture”
- Remediation not the goal
- Openness and flexibility to switching lens to consider alternative contributors to performance issues
- Environmental approach to supporting capacity development for EF lens
- Reflective practice that emphasizes the integration of new learning into the clinical perspective