

# Cognition & Executive Functioning (EF)

## *What are they?*

- ❖ Cognition is defined as the mental processes involving acquiring, manipulating, storing, and using information (Cermak & Toglia, 2018). Cognition includes language, perception, memory, attention, and executive functioning (Griffin et al., 2015, as cited in Cermak & Toglia, 2018).
- ❖ Executive functioning (EF) is a broad concept used to describe an individual's ability to plan, organize, initiate, transition, shift mindsets, set goals, prioritize, remember, and self-regulate (Cramm et al., 2013). The three main areas of EF include inhibitory control, or self-control, working memory, and cognitive flexibility, also referred to as mental flexibility (Lehto et al., 2003; Miyake et al., 2000, as cited in Diamond, 2012).
- ❖ Deficits in executive functioning are common across numerous disorders of childhood including anxiety disorders, attention deficit hyperactivity disorder (ADHD), learning disabilities, and autism (Altarac & Saraha, 2007; Children's Mental Health Ontario, 2007; Faraone et al., 2003, as cited in Cramm et al., 2013).
- ❖ For more information on cognition and EF, you can visit the following websites:
  - Child Mind Institute - <https://childmind.org/article/helping-kids-who-struggle-with-executive-functions/>
  - Davidson Institute - <https://www.davidsongifted.org/search-database/entry/a10822>
  - Pathways.org - <https://pathways.org/print/executive-function-brochure/>

## *What are the signs of cognitive/EF deficits?*

- ❖ Signs that may indicate challenges with executive functioning include (but are not limited to), frequent forgetfulness, impulsive behavior, disorganization, difficulty beginning tasks independently, difficulties managing time, and decreased self-regulation (Pathways.org, 2020).
- ❖ Children with EF challenges may experience difficulties with following directions, comprehending written material, managing multiple projects/tasks, adapting to new environments or situations, accepting when they may not get their way, and with keeping their attention on a specific task.

## *How can cognitive/EF deficits impact occupational participation?*

- ❖ Cognitive and EF deficits can impact all aspects of occupational participation and performance ranging from performance in ADLs (i.e., dressing, toileting, etc.) and school to play and social participation.

## *How can OTs help?*

- ❖ Depending on the child's needs, an OT may work to promote independence and participation in occupations by:
  - Educating on and practicing using cognitive strategies across multiple contexts (i.e., CO-OP)
  - Adapting tasks or environments to minimize EF demands (Hahn-Markowitz et al., 2020)
  - Promoting opportunities to practice EF skills through an enriched environment
  - Providing training in problem-solving strategies (i.e., simplifying/breaking down tasks, etc.)
  - Using play-based interventions that gradually increase cognitive demands to support EF development (Cermak & Toglia, 2018)
  - Providing parent/caregiver recommendations for supports (i.e., timer, checklists, etc.) and modifications (i.e., reducing distractions/clutter, material preparation, etc.) for carry over into home (Hahn-Markowitz et al., 2020)

*\*Information above is not comprehensive and all treatment plans are specific to and depend on the needs of the child and are in no way limited to the examples provided above*

### References

- Cermak, S., & Toglia, J. (2018). Cognitive development across the lifespan: Development of cognition and executive functioning in children and adolescents. In N. Katz & J. Toglia (Eds.), *Cognition, occupation, and participation across the lifespan* (4th ed., pp. 9-27). ACTA Press.
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- Diamond, A. (2012). Executive functions. *Annual Review of Psychology*, 64, 135-168. 10.1146/annurev-psych-113011-143750
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