

PRACTICE

Imagine That... The Power of Pretend Play in Executive Function Development

by Rachel Robertson

These days it seems the fields of neuroscience, developmental psychology, child development, and the like, are brimming with new discoveries or advanced understandings about how brains work. And there are few people that get more excited about these ideas than education professionals. Executive function is one of those topics that has captured the attention of educators of all students—from preschoolers to college students. In fact, Carlson’s research on EF is a perfect example.

While researchers have been studying what we call EF for decades, it is a relatively new term to practitioners. Although many of us saw the famed “marshmallow study” in college, the application of the outcomes wasn’t clear. It was cute, but what did it mean? Now, with new information and insights, practitioners are working toward a better understanding of the concept of EF (including, but also beyond the self-regulation behavior demonstrated in the marshmallow study) and gathering classroom support techniques. For early educators, Carlson’s research not only contributes to our understanding of EF and how it develops, but also provides insight into ways we can support the development of this set of mental skills in young children.

What exactly is EF?

As Carlson noted, EF is a set of mental skills that include:

- cognitive flexibility—the ability to maintain or change focus

- working memory—the ability to retain, sort, filter, or combine information
- inhibitory control—to resist impulses and distractions, to maintain focus

These are clearly important skills and together they make up the “control center” of a human brain. Many have likened these sets of skills to an “air traffic controller” or the “CEO of the brain.” These analogies make sense because together this set of skills serves as a foundation for many other cognitive and social-emotional competencies and leads to all sorts of positive outcomes for children and adults. Simply put, children and adults with more advanced EF skills are more successful in classrooms and in boardrooms.

How does EF develop?

Executive function skills take a long time to develop and are typically not fully developed until people are in their mid-20s. (This explains a few things, doesn’t it?) But, the beginnings of these skills are emerging in infancy and are shaped and strengthened—or inhibited—throughout life. According to Harvard Center for the Developing Child, “Children aren’t born with these skills—they are born with the potential to develop them. If children do not get what they need from their relationships with adults and the conditions in their environments—or (worse) if those influences are sources of toxic stress—their skill development can be seriously delayed or impaired.” (<https://developingchild.harvard.edu/science/key-concepts/executive-function/>). The importance of this finding can not be overstated. We can clearly see the consequences that occur when children with poorly developed EF grow into teens and adults with deficient EF.

Fortunately, Harvard stresses that adults, including early educators, can heavily influence the development of these skills in a child. But how do we do that? There are countless ways to support EF development in young children. Let’s



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focus on a few strategies directly linked to Carlson's "Batman effect" findings.

Using Imagination

How many times has an adult uttered the words, "Use your imagination" as a way to persuade a child? Little did that adult know they were building a child's EF skills. According to Carlson and team's research, when a child takes on the imaginary role of a positive role-model, that child is able to persist longer and exhibit more advanced executive function. Carlson states that young children spend up to two-thirds of their waking time in pretend play so this seems an obvious opportunity to both strengthen EF skills and put them to use.

Ideas for implementation:

- Observe and reflect on each child's level of pretend play as you would their progressive math and reading skills. Provide opportunities for advancing pretend play. (Carlson's example of the toothbrush above demonstrates a progression of sophistication in a child's imagination.)
- Consider dramatic play an important learning center and/or opportunity. Reflect on the classroom dramatic play experiences and materials (both in a defined learning center and during other daily activities). Ensure materials are diverse and refreshed periodically. When children are engaged in pretend play, ask them open-ended questions to prompt thinking and reflection about their persona. Assess children's EF growth by observing their use.
- Ask children to take on a persona when faced with a challenging task such as transitioning from one activity to another. For example, ask, "What would Batman do when it is time to clean-up?" (Note that Carlson acknowledged concerns over the use of commercial characters, but indicated her findings were relevant with all positive personas. In fact, your class could even make one up!)

Carlson is careful to mention that this idea begins to show impact at age four, since three-year-olds and younger do not possess other cognitive functions that make more sophisticated pretend play possible.

Everyday Ideas

There are many ways to support EF beyond strengthening and using pretend play skills. For example:

- **Storytime:** Choose stories that allow for discussion about perspective. Ask children questions that require them to think from the perspective of characters in the story.

- **Outdoor games:** Revamp tried and true classics with EF in mind. Simon Says is a great EF building experience (or demonstration of lack of EF). Depending on the developmental stages of the children, play the game with the intention of working on EF. Consider asking older children to try taking on a persona when playing the game and see if they are able to persist longer. Red light, green light or other stop and start games are good for EF skills as well. Playing from an EF perspective is all you need as a teacher to increase your intentional support for the development of working memory, inhibitory control, and cognitive flexibility.

- **Other games:** The memory game is an excellent working memory exercise, as are word games that start with phrases like, "I'm going to the grocery store and I am going to buy..."

- **A word of caution:** It is important to minimize unnecessarily using EF and related skills or expect too much. These skills are budding in young children. When we ask them to wait for long periods of time (two minutes can sometimes be too long), or to remember too many instructions, or to pay attention for long periods of time, we are taxing these newly developing skills. Question your routines and expectations to be sure EF skills are supported rather than depleted.

In Practice

At Bright Horizons, we ensure children in our programs have robust opportunities to develop and nurture their EF skills and self-regulation. We know these functions are critical for school and life success and we consider it our responsibility to prepare children for their future by providing joyful childhood experiences that foster progressive development. While we are rooted in research and steadfastly committed to our inquiry-based, emergent curriculum approach, we are also committed to an ongoing evolution of our practices to align with evolving wisdom in our field. To that end, we have recently worked with Carlson to assess and enhance our curriculum and teaching practices. This has led to an even deeper understanding of EF skills and more intentional teaching practices focused on EF across all age groups. Armed with a more thorough understanding of the skills and how they develop, teachers are inspired to capitalize on everyday opportunities for EF development.

Carlson's research is a perfect example of the exciting new brain/learning research our field is benefitting from. In a fascinating way, it extends what was known about EF and gives us new ideas and tools to support and guide children.



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