



MEASURE WHAT MATTERS!

How Executive Function Develops over Childhood

The **Harvard Center on the Developing Child** explains how executive function develops from infancy into adolescence, and even adulthood.

Experts in the field, including Reflection Sciences' Co-founder, Dr. Phil Zelazo, talk about Executive Function skills, including working memory, inhibitory control, and cognitive flexibility. These skills allow for focusing, thinking flexibly, inhibiting impulsive responses, avoiding distractions, and keeping rules and information in mind to guide later behaviors.

They suggest to think of about it this way: imagine an **Air Traffic Control Center** at a busy airport. This system will need to bear in mind the room left in the air and on the runways, while also managing a number of planes, some needing to land and others needing to take off. Executive Function regulates the flow of information and the focus on tasks, creates mental priorities, avoids "collisions," and keeps the system flexible and on time.

Dr. Deborah A. Phillips, Professor of Psychology and Associated Faculty in the Public Policy Institute at Georgetown University, explains, "Take a situation where a child is having to take turns. The child has to have **inhibitory control**. [They] have to be able to stop whatever he or she is doing and let the other child take a turn. But when it's [their] turn again, they have to remember what it is [they're] supposed to be doing. That pulls on **working memory**. If the children who were taking a turn after [them] do something unpredictable, [they] have to be able to adjust what [they're] going to do next. That requires **mental flexibility**."

This skill set develops rapidly in early childhood, and contributes both academic and life success.

Watch the full, five-minute video here:
https://youtu.be/efCq_vHUMqs



MEFS™ App Now Available for Android Users!

It is with great pleasure we announce the Minnesota Executive Function Scale (MEFS™) is now available on [Google Play](#) for Android users! You can download the free app to your Android Tablet by searching **Minnesota Executive Function** in the Google Play store.

The MEFS™ app is a game-like, drag-and-drop early learning readiness tool designed to provide a brief, comprehensive, direct behavioral assessment of emerging **Executive Function** skills.

At Reflection Sciences, our goal is to reduce gaps in achievement and opportunity by advancing the science and practice of Executive Function to accelerate learning. We already know enough to start making a positive impact, and we want you to be able to benefit directly from that information and play an active role in the process. Contact your child's preschool, K-12 school, after school program, Head Start center, or pediatric clinic to tell them about the MEFS!

Father Influence on Children's Cognitive Skills & Executive Function



By Alyssa Meuwissen, Ph.D.

In both research and popular culture, moms have often been depicted as the “default” parent. However, demographic trends show that dads are becoming more involved in the care of young children. There is great variety in the make-up of modern families and how they make parenting work. Our culture has shifted from seeing dads in a “helper” role to seeing parents as a team of partners. The family home is a crucial environment for building children’s cognitive skills, including executive function.

Here’s what we know about the influence fathers have on their children’s cognitive and executive function skills:

1. Moms and Dads Both Matter.

Both moms and dads show variety in how they parent. When key ingredients of high-quality parenting are measured (e.g., being warm and sensitive to the child or supporting a child’s learning), we find no difference in the quality of parenting provided by mothers versus fathers. High quality parenting is related to positive child cognitive outcomes when coming from either parent.

Helpful Tip: *Having high quality parenting from all caregivers in a child’s life is even better than having high quality parenting from one! It is important for dads to know that their interactions matter, and to include fathers when thinking about how to promote a high-quality early childhood environment for children.*

2. Quality Matters More than Quantity.

One difference that is frequently found between moms and dads is that moms tend to spend more time with their children, especially in caretaking activities like feeding, bathing, etc. However, even when dads spend less time with their kids than moms, the time they do spend parenting still matters! Studies show that the quality of time dads spend with their kids has greater effects on the child’s development than the quantity of time.

Helpful Tip: *Make whatever time you do have count! Even if you are not at home all day with your children, know they are still learning and growing because of how you interact with them.*

3. Go Ahead and Wrestle!

Although moms tend to have a stronger caregiving role, dads, on average, have a stronger playmate role. Father play tends to be more exciting and unpredictable. Dads also tend to use more complex vocabulary when playing than moms do. Dads can enhance play in many ways, by introducing new ideas such as competition, racing against the clock, or taking new risks. When kids play with their dads, it is great practice for important skills such as regulating emotions and managing impulses.

Helpful Tip: *When you rough and tumble play with your child, watch to see what your child is comfortable with and thinks is fun. Find a balance of ideas that encourage them to stretch their limits, but don’t push them to do things they find scary or overwhelming.*

4. Every Parent is Unique!

Sometimes dads do things a little differently from moms, and that’s OK! As kids grow up, they constantly have to adjust to new rules (e.g., behavior expectations for home, preschool, the library, the playground, etc.). Having two involved parents can give kids practice switching between different rules. It’s helpful if parents can agree on the basic routines of eating, sleep, and expectations for appropriate behavior, but caregivers can also be themselves and parent to their strengths. When kids interact with multiple caregivers, this gives them a chance to develop the skill of flexibility, which is an important life-long executive function skill.

Helpful Tip: *Different parents might do things differently. For example, when riding in the car with mom, kids might listen to books on tape, while in the car with dad, they might crank the music and sing. There isn’t one right way to be a parent, and kids can actually benefit from the variety.*

5. Modern Families: It’s the Love that Counts.

The good news is that none of these benefits is specific to a biologically related male caregiver, and all types of families can be a great place for kids to grow! Any trusted, caring adult in a child’s life who is invested in a caregiving role can be a part of a child’s path to success.

Helpful Tip: *Embrace the unique things you, your spouse, your relatives, and your friends can all provide for your child. Surround yourself and your child with a supportive network – whatever that looks like for you!*

Mindfulness: Take a Moment & Breathe

By Andrei Semenov

Lie down, relax and take a deep breath. Feel the air, fill your lungs as you pay attention to what is happening in the moment, right now. Feel your toes, one by one, think about your feet and your legs, are they heavy, or light? Tired or rested? Move your way up, and think about each part of your body. If you feel a sudden emotion, experience it fully and then let it go. If a thought enters your mind, recognize it and let it go. Pay attention, to the present moment, deliberately and without judgement.

What is Mindfulness?

This simple exercise is part of a *body scan*, a standard activity in **mindfulness** courses and trainings. Mindfulness is a way of thinking, that promotes moment-to-moment attention to yourself and the environment. Often, but not always, mindfulness takes the form of meditation and has been used in the medical world to reduce **stress, anxiety** and **pain**. Recently, mindfulness practice has become more common as people incorporate it in their daily lives, including with their children.

Mindfulness promotes reflection, body and mental awareness. Practicing mindfulness with children helps improve their executive function (EF) skills as well as emotion regulation and pro-social skills such as empathy. Getting children in the habit of becoming aware of themselves, their feelings, how their attention wanders and the details of the world around them helps them better engage in regulating their thoughts and actions through their EF skills.

The Need for Mindful Classrooms

In the classroom, children interact with teachers, other students and objects in the environment. While they do this, they need to keep in mind classroom rules (e.g., no running, no yelling, etc.) and social rules (e.g., sharing, responding to others' emotions, etc.) and change their behavior to follow those rules. At the same time, children have their own internal thoughts and emotions motivating them to act. Sometimes these *bottom-up* influences are stronger than the *top-down* EF skills needed to regulate them. For example, a child might *know* how to play in a group and take turns, but one day the same child might have had a bad night of sleep and skipped breakfast and gets off on the "wrong foot."

Mindfulness practice helps train people to recognize and accept their emotions and thoughts and thereby reduce the impact that bottom-up influences might have in our day-to-day lives. For example, being mindful of your thoughts and emotions might help you recognize that your hunger is making you more impulsive and less regulated than usual (such as being more likely to get angry with your kids). In response, you could learn to take a few deep breaths before making decisions to allow for top-down regulation and your "best self" to take back the reins from the stress response.

Mindfulness practice in the classroom takes many forms. Programs like the MindUP curriculum offer a mix of standard mindfulness activities such as deep breathing exercises and meditation as well as lessons on perspective taking and empathy. MindUP has been shown to improve student's EF skills, their prosocial skills and even academic achievement.



Example of Mindful Activities At Home

At home, you can engage in simple mindfulness activities to help yourself and your child. Try mindful eating, during this activity, reflect upon various aspects of a food *before* tasting it. *What does the food look like, what does it feel like, does it remind you of anything you've seen/felt before?* Try this activity with your child, and for added benefit try it with a snack that is particularly favored by the child, like a marshmallow. With older children try mindful belly breathing. Lay down on the floor next to your child, place a small stuffed animal on your child's belly, tell them to breathe deeply so that the animal rises and falls with every breath, they should also breathe slowly enough so that the animal does not fall off their belly. Have children count their breaths from 1 to 10 and then start over again at 1. Do this for 5-10 minutes or however long feels comfortable. After these mindfulness activities, talk with your child and ask them what they thought about, how they feel and share your own experience.

Reflecting upon your own thoughts and emotions is an essential component of being able to regulate your behavior and flexibly adapt to a changing environment. If we help children recognize their thoughts and reflect upon them, it might make it easier for them to act in a way that is less impulsive and more deliberate.