

Executive function

A very important role for teachers of young children is to promote broad ways of thinking and learning. We can help children discover approaches to solving problems, focusing (attending), remembering, planning, gaining self-control, reflecting, and reacting appropriately – all critical skills. These types of skills are referred to as executive functions, or ‘tools of the mind’. We need these skills in communicating, learning, thinking, and in managing ourselves.

Growing research shares the importance of executive function skills as a predictor to school success and as a critical building block for early development in both cognitive and social capabilities (Center on the Developing Child at Harvard University 2011). As shared in the book *Growing Minds: Building Strong Cognitive Foundations in Early Childhood* (Copple 2012), “We should bear in mind that executive function or self-regulation is more than just impulse control; it is the managing and orchestration of many cognitive functions.” These skills are what you need when you have to concentrate, to use what you already know, to be creative with what you know, and to problem solve. Although there is a broad umbrella of skills associated with executive function, there are three main, inter-related areas:

1. **Working Memory**, the capacity to hold information in mind and work with it, over short periods of time.
2. **Inhibitory Control**, the skill we use to master and filter our thoughts and impulses so we can resist temptations, distractions, and to pause and think before we act.
3. **Cognitive (or Mental Flexibility)**, the capacity to switch gears and respond to changes; think about something in a new light.

“Having executive function in the brain is like having an air traffic control system at a busy airport to manage the arrivals and departures of dozens of planes on multiple runways...these skills support the process (i.e., the how) of learning – focusing, remembering, planning – that enable children to effectively and efficiently master the content (i.e., the what) of learning – reading, writing, computation.

Center on the Developing Child at Harvard University

Promoting the mindset of executive function

Executive function is not a five or ten minute practice, but rather the orchestration of varying skills immersed throughout the entire day, months, and years (preschool-adult), reinforcing habits of self-control and other cognitive functions. Deborah Leong and Elena Bodrova, authors of *Tools of the Mind: The Vygotskian Approach to Early Childhood Education*, propose that dramatic play is the number one proponent in developing executive function skills (like self-regulation.) But not just ‘free play’, rather what they call ‘mature dramatic play’; play that is complex and intentional. Through complex play, children learn to regulate themselves and bring structure to their ideas.

Dramatic play invites many tools to be used. For example, when children make up games, they improvise ideas and props (a block can be a baby, a blanket can be a cape), and learn to regulate their behavior (“I’m the cook so I need to be at the stove and cook”). They also learn about regulating others (“I’m the ‘mom’ so I need to take care of the ‘children’”).

Play encourages children to stop and think, have a role/character in mind and also keep the role of others in mind (“I’m the Mom and he is the baby”). In playing their role, they often use skills they have not yet mastered (write a grocery list, sing to the baby, try vocabulary they usually do not use, such as a doctor’s) therefore, play and learn at a higher level.

When children are guided to build on their play, they often can carry on role-playing longer and are better able to ‘give and take’ in flexible ways with others (sharing ideas and commands). During dramatic play, there is careful thought and support by the teacher; she has

clearly defined objectives for children, including teaching strategies to help achieve these objectives. The teacher carefully observes the play to see when support is needed or when ideas can be shared to teach ways to build on the play (“Your restaurant needs a menu to decide what to eat. What should we use as the menu?”). She is able to explain why she is doing what she is doing, and how she is supporting the experience.

Teachers can promote executive function skills by using evidence based curricula (that support executive function) and intentional teaching tools such as:

Working, talking, and thinking out loud – Chatter is good. When children share their ideas out loud, either privately or with a group, they are building working memory. Thinking out loud helps organize ideas and is a form of self guidance, which is all part of executive functions.

Planning and reflecting ideas – Making plans requires focus and encourages ‘mental thinking’ or rather constructing ideas into actions toward desired goals. Help children make daily plans for play, projects, and partner work – or whatever fits. Teachers can help write, but from early on, encourage children to make their own symbolic representations. Reflection is explored when you revisit previously made plans to update, add changes, results, and so forth.

Mediators – Use physical objects, visuals, and actions/ signals to remind children how to recall or do a task. An

example is a picture of hands being washed placed above a sink or a song with reminders in it.

Scaffolding – Use step by step approaches to learning, breaking complex tasks into simpler ones, and providing ideas to extend play all based on the child’s overall development and temperament. A goal in scaffolding is to transition from teacher assistance to independence; as the child grows in ‘mastery’, the assistance is lowered or withdrawn. The support provided is temporary, and supports are removed gradually leading to independence.



Resources and References

Center on the Developing Child at Harvard University (2011). *Building the Brain’s “Air Traffic Control” System: How Early Experiences Shape the Development of Executive Function: Working Paper No. 11*. Retrieved from www.developingchild.harvard.edu

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