

Executive Function Skills: What They Are and Why They Are Relevant for Workforce and Related Human Service Programs

By

LaDonna Pavetti, Ph.D.
Vice President, Family Income Support
Center on Budget and Policy Priorities

Paper prepared for the Association for Public Policy and Management Annual Conference
Washington, DC
November 9, 2018

Executive Function Skills: What They Are and Why They Are Relevant for Workforce and Related Human Service Programs

Introduction

At the start of the millennium, the National Academy of Science released a report, *From Neurons to Neighborhoods: the Science of Early Childhood Development* which significantly changed the way we think about early childhood development – and started a conversation about how to develop policies and programs for disadvantaged children that are rooted in science, with a special focus on early brain development. Since then, our knowledge of how the brain develops and the important role the environment plays in shaping early and later life experiences has expanded exponentially, paving the way for an expanded conversation about how to use this knowledge not only to develop effective early childhood policies and programs but also to consider the implications for policies and programs aimed primarily at parents and other caregivers. This expanded view is illustrated by the following passage from an article by Jack Shonkoff (a lead author of *From Neurons to Neighborhoods*) and Philip A. Fisher, Science Director for the National Forum on Early Childhood Policy and Programs at Harvard University (emphasis added):

“...science suggests that significantly greater impacts on the healthy development and life prospects of vulnerable young children could be achieved **by focusing greater attention on strengthening the capabilities of their caregivers, improving the economic stability of their families, and building stress-buffering resources in their communities rather than by continuing to focus primarily on the provision of child-focused enrichment, parenting education, and informal support.**”¹

Achieving success as both a parent and a worker is a complex endeavor that requires individuals to draw on many different types of skills and is far more difficult when resources are scarce. In addition to the post-secondary credentials that are increasingly needed for success in the labor market and for moving families out of poverty, there is increasing evidence that “executive function and self-regulation” skills that individuals draw upon to successfully achieve short and long-term goals are also important. While there is no one generally accepted definition of these skills, there is general agreement about what they accomplish -- they are the skills that individuals draw upon to identify goals, create a roadmap and take action to achieve them and regulate their behavior to stay focused on achieving their goals in the face of competing priorities. These skills play an important role in determining whether an individual succeeds or fails in completing an employment, education, or training program or successfully balances the demands of work and family, although other factors such as having stable housing, supports such as child care and transportation also play a significant role.

Until recently, most of the attention on the development of executive function skills has focused on children (and adolescents to a lesser degree), but recent work by Frontiers of Innovation, a project of the Center on the Developing Child at Harvard University, has generated interest in considering whether a greater focus on parents’ executive function skills could have positive impacts

¹ Jack P. Shonkoff and Philip A. Fisher. Rethinking evidence-based practice and two-generation programs to create the future of early childhood policy. *Development and Psychopathology*, 25 (4, part 2), 1635–1653. Copyright Cambridge University Press, 2013.

on both parents and their children. In particular, as a part of their two-generation theory of change, they hypothesize that “interventions that improve the caregiving environment [of children] by *strengthening the executive function and self-regulation skills* [of parents] will also enhance their [parents’] employability, thereby providing an opportunity to augment child outcomes by strengthening the economic and social stability of the family.”

There is evidence that executive function skills are important for success in many aspects of life, including productivity at work.² Several features of executive function skills make them relevant for workforce and related human service programs. First, they are malleable and can be cultivated and trained across the lifespan. Second, they develop through practice – the more they are used, the stronger they become. Third, the impact of weak executive function skills on employment outcomes potentially can be reduced by modifying the demand for them and by matching individuals with jobs that play to their executive skill strengths. Fourth, several factors that impair executive function skills -- stress, lack of sleep, lack of exercise, sadness, loneliness, and poor nutrition— are situational and can be mitigated by improving an individual’s environment and helping them to develop supportive social connections.³

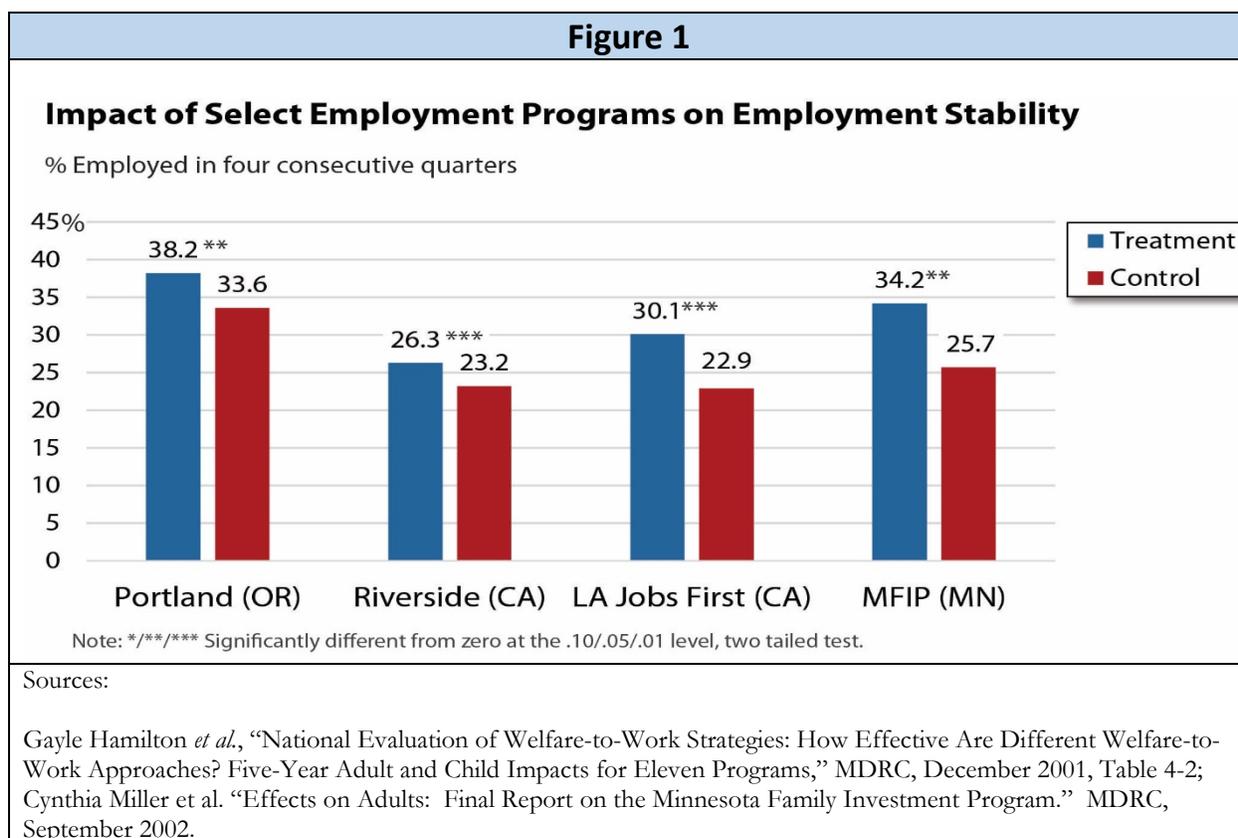
Although the study of executive function skills is a burgeoning field, there has been relatively little attention paid to the development of executive function skills in adults – and even less attention to the implications for programs that aim to improve adults’ employment prospects. This is decidedly new territory for the workforce and human services field with limited executive function-informed service delivery models on which to build. But, given the modest success of even the best employment and training programs, there is good reason to move beyond what is known to try new approaches.

Substantial Room for Improvement in Employment and Training Programs

Even the most effective employment and training programs have not succeeded in helping the majority of participants to work steadily. Over the years, there have been numerous rigorous studies of employment and training programs, many of them conducted in employment programs for parents receiving direct financial support to meet their basic needs. A number of these studies have shown significant impacts on employment in the short-term, meaning that the individuals randomly selected to participate in the program being evaluated had significantly higher rates of employment than individuals not reselected to participate. This does not, however, mean that the majority of program participants were stably employed after participating in the programs. In fact, as Figure 1 shows, the opposite is true – the majority of program participants did not work steadily. For example, in one of the most effective programs, the Portland Job Opportunities and Basic Skills (JOBS) program, only 38 percent of the program group had earnings in four consecutive quarters, compared to 34 percent in the group not assigned to participate in the program.

² Diamond, Adele. (2013). Executive Functions. *Annual Review of Psychology*. 2013.64:135-168, 2013.)

³ Diamond, Adele. “Want to Optimize Executive Functions and Academic Outcomes? Simple, Just Nourish the Human Spirit.” *Minnesota Symposia on Child Psychology. Developing Cognitive Control Processes: Mechanisms, Implications, and Interventions*, Ed. Philip David Zelazo and Maria D. Sera., Minneapolis, MN: Wiley & Sons, Inc., 2014



Evidence that Focusing on Executive Function Skills Might Improve Employment Outcomes

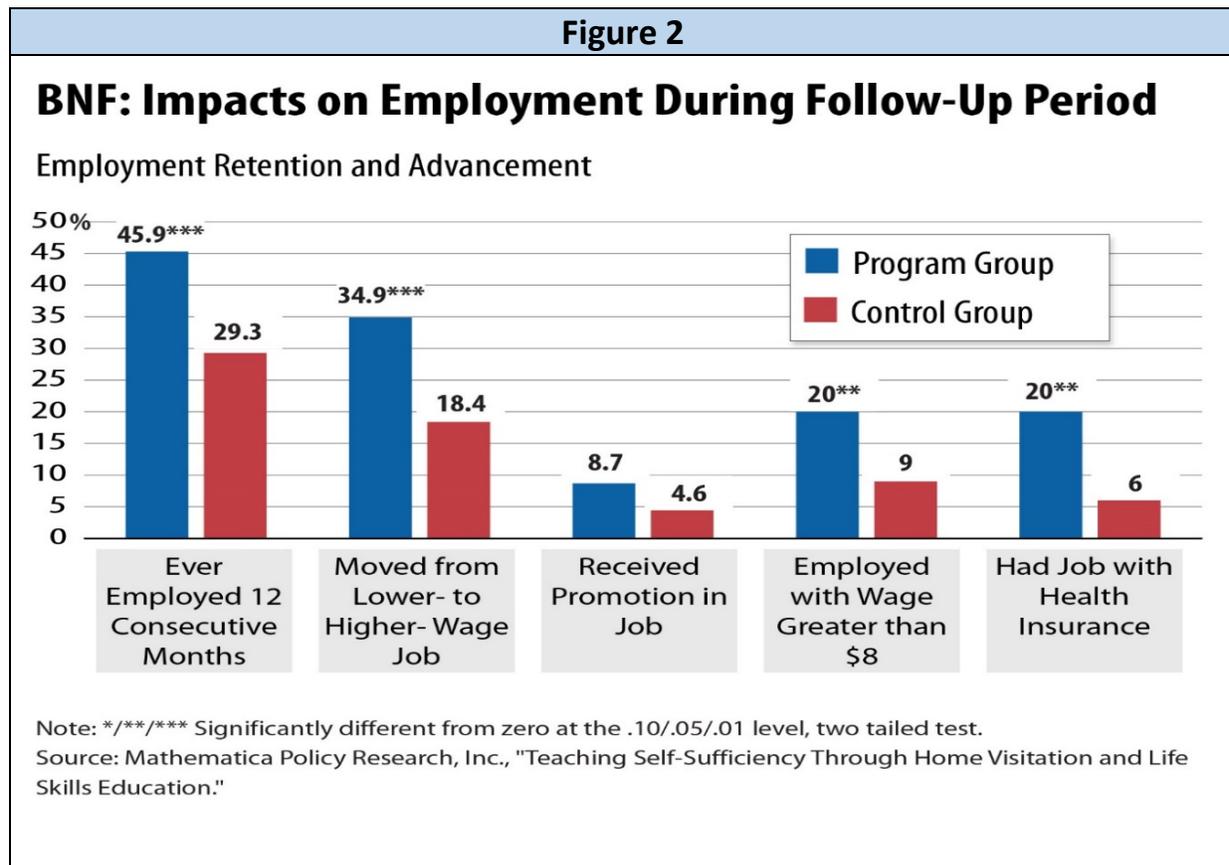
The Building Nebraska Families (BNF) project -- a program that worked with Temporary Assistance for Needy Families (TANF) recipients in their homes in rural Nebraska to increase their life skills and job readiness-- provides rigorous evidence that a focus on executive skills may help to significantly improve employment stability and increase earnings for families facing multiple personal and family challenges.⁴ While this program was not explicitly designed with executive skill principles and concepts in mind, the program taught and helped participants use such skills as goal setting, time management, stress management and money management, among others. The program was implemented in participants’ homes, but unlike other home visiting programs that are primarily focused on improving health and developmental outcomes for children, this program focused on improving employment outcomes for parents. Even though the program did not provide employment services directly, it achieved some of the biggest impacts on employment stability we

⁴ Alicia Meckstroth, Andrew Burwick, Quinn Moore and Michael Ponza. “Teaching Self-Sufficiency Through Home Visitation and Life Skills Education.” *Trends in Family Programs and Policy, Issue Brief #3*. Princeton, NJ: Mathematica Policy Research, 2009.

have ever seen for families facing multiple personal and family challenges. (See Figure 2.) (The program did not produce the same significant impacts for families facing few of these challenges.) The three characteristics that distinguished the program from other programs were: (1) the program focused on teaching what the program termed “life” skills; (2) services were delivered in families’ homes and (3) services were delivered by highly skilled educators or counselors.

The program was evaluated using a random assignment design, providing confidence that the improvements in individuals’ employment outcomes were due to the program. Almost half (46 percent) of the program group was ever employed for 12 consecutive months, compared to about 30 percent in the group that was not selected to participate in the program. These impacts were found among individuals with the most significant employment barriers including no high school diploma and very little recent employment experience – a group that often does not fare well in employment and training programs. In the final six months of the 30-month follow-up period, participants also had significantly higher earnings and were significantly less likely to report health-related hardships, including poor physical health, self-reported depression, and domestic abuse than those not assigned to participate in the program.

The program was not cheap, costing an average of about \$8,300 for individuals facing multiple personal and family challenges. However, the researchers studying the program estimated that if the program was targeted to individuals with the most limited employment prospects and if the employment impacts observed in the last six months of the follow-up persisted for 1.7 years, the benefits to society would outweigh the costs.



What Are Executive Function Skills and Why Are They Important?

Although there is a large and growing literature on executive function skills, there remains considerable variation in how researchers and practitioners define them. For example, a recent review found that since the early 1970's when the term "executive" was first used to describe these skills, there are at least 30 different constructs that have been used to describe executive function skills.⁵ Below, I describe three different constructs that provide useful information for employment and training and related human service programs. These three different constructs are not in conflict with one another, but instead illustrate different ways in which executive function concepts and principles can be used to understand the processes and skills involved in setting and achieving goals. Broadly speaking, it is useful to think about executive function as having two dimensions: (1) a process dimension that describes the process of achieving a goal and (2) a skills dimension that describes the skills that an individual draws upon to complete each step of the process.

Executive Function as a Goal-Setting Process

Philip D. Zelazo, a neuroscientist at the University of Minnesota who specializes in the study of executive function skills in children, has developed an executive function framework focused on goal attainment and problem-solving that is relevant for thinking about executive function skills in the context of workforce and related human service programs.⁶ In this formulation, he breaks executive functions into four key functions that must be completed in a specific sequence:

- **Representation:** What is my goal? What is preventing me from accomplishing it?
- **Planning:** What is my plan for achieving the goal?
- **Execution:** How will I carry out the plan? What resources/help do I need?
- **Evaluation:** Did I select the right goal? Did my plan work? If not, what do I need to change? Was my plan realistic? How well did I do at executing it? What can I do differently to get a better result?

An important aspect of this framework is that it makes explicit that there are multiple steps involved in achieving a goal. It also demonstrates that success involves going through an iterative process that repeats itself over and over again. Progress in achieving a goal can go awry at any stage.

The Interconnection of Executive Function Processes and Skills

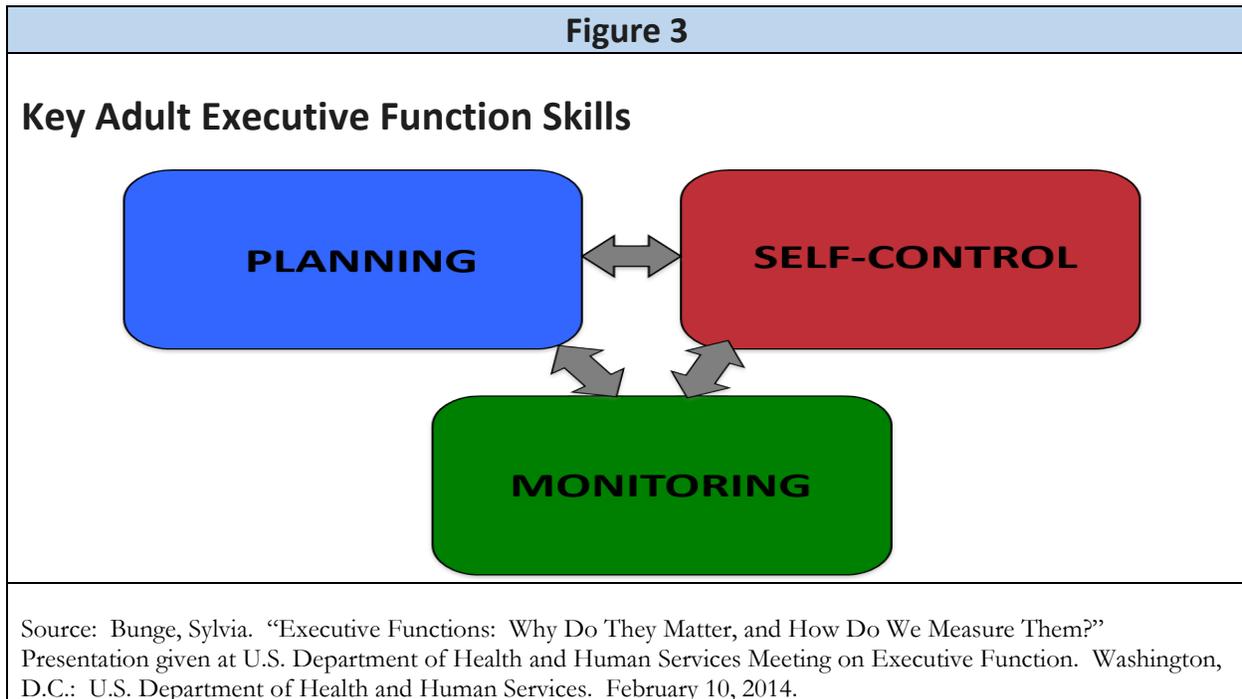
Sylvia Bunge, a neuroscientist at the University of California at Berkeley who has done research on the development of executive function skills in adults, has identified three key interconnected executive function skills as especially important: self-control, monitoring and planning.⁷ (See Figure

⁵ "Introduction: A History of Executive Functioning" by Sam Goldstein, Jack A. Naglieri, Dana Princiotta and Tulio M. Otero in *Handbook of Executive Functioning*. Edited by Sam Goldstein and Jack A. Naglieri, New York, New York: Springer, 2014.

⁶ Philip Zelazo. "What Is Executive Function?" Aboutkidshealth.ca. Accessed from <http://www.aboutkidshealth.ca/En/News/Series/ExecutiveFunction/Pages/default.aspx> on February 2, 2014.

⁷ Sylvia Bunge. "Executive Functions: Why Do They Matter, and How Do We Measure Them?" Presentation given at U.S. Department of Health and Human Services Meeting on Executive Function. Washington, D.C.: U.S. Department of Health and Human Services. February 10, 2014.

3.) Self-control is what allows individuals to not get distracted from pursuing their goals; it is what keeps them focused and on track. Monitoring is what allows individuals to evaluate how well they are doing in meeting their plan for achieving their goals and to be aware of whether their behavior is appropriate for the setting in which they are in. Planning is what makes it possible for individuals to set long-term goals, identify the obstacles and possible solutions for overcoming them, and specify the steps and set appropriate deadlines and reminders for achieving the goals they have set.



Central to Dr. Bunge's construct of executive function skills is the idea that our behavior lies along a continuum with reactive and impulsive behavior at one end and proactive goal-directed behavior at the other end. Executive function skills are the skills that allow individuals to focus their attention and actions on long-term goal-directed behavior instead of immediate short-term impulsive behavior. They also allow individuals to focus on the future rather than the immediate and consider multiple rather than one factor and the needs of others as well as themselves when making decisions.

Executive Function Skills Through a Practice Lens

Richard Guare and Peg Dawson, mental health practitioners and authors of multiple books on strengthening executive function skills (which they refer to as executive skills) in children, adolescents and adults, have identified 12 skills which they have found to play a role in goal achievement.⁸ (See Table 1.) The executive skills that Guare and Dawson use in their work is a

⁸ Peg Dawson and Richard Guare. *The Smart but Scattered Guide to Success*. New York, New York: The Guilford Press. 2016.

more expansive list than is often referenced in the academic literature. (For example, the literature on executive function skills in children often focuses on just three skills: flexibility (or cognitive flexibility), working memory and inhibitory control.) They have developed this more expansive list because they have found that when skills can be defined specifically, it is easier to create interventions to address those skills. For example, if someone regularly misses appointments, the intervention strategy would be different if the problem arises because of weak time management skills than if the problem arises because of weak inhibitory control or task initiation skills. Table 1 provides a summary of the 12 skills and links them to Dr. Bunge’s three categories of self-control, monitoring and planning.

Guare and Dawson’s approach to executive skills which explicitly focuses on helping individuals to improve their ability to achieve their goals is based on two key principles: (1) all individuals have an array of executive skill strengths as well as executive skill weaknesses, and (2) the primary purpose of identifying areas of weakness is to be able to design and implement interventions to address those weaknesses. They use an executive skills questionnaire to gain a better understanding of an individuals’ executive skills profile. They then use the profile to develop a plan for addressing the behavior that is keeping an individual from achieving their goal.

Context Matters: How Living in Poverty Impacts EF Skills

The development of and our ability to access and use our executive function skills are influenced by the context in which we live our lives. The impact of poverty on adults’ executive function skills begins in early childhood and continues into adulthood. Understanding how poverty impacts the development and use of executive function skills provides important insights into why goal achievement can be so challenging for many human service program participants and helps to identify why using an executive-function informed approach to goal setting may lead to better outcomes. Here are four ways in which poverty impacts executive skills:

Exposure to high levels of stress in childhood. One of the hallmarks of living in poverty as a child is that it exposes children to high levels of stress caused by not having enough to eat, not having a stable place to live, or being exposed to violence, for example. When children experience too much ongoing stress – commonly referred to as toxic stress—it changes their brain architecture which impairs the development of executive function skills. This, in turn, can have a lifelong impact on their health and economic outcomes as adults.

Living under conditions of scarcity -- the “bandwidth” tax. Living without enough resources to make ends meet – under conditions of chronic scarcity—imposes a “bandwidth tax” which reduces the cognitive resources individuals have available to devote to activities aimed at achieving long-term goals. Sendil Mullainathan and Eldar Shafir, authors of *Scarcity: Why Having Too Little Means So Much*,⁹ note that when people live in a state of chronic scarcity, they have a tendency to “tunnel” which causes them to focus on the here and now. This reduces individuals’ capacity to think logically, solve novel problems, and process information. It also diminishes their ability to evaluate options to make high quality decisions and impairs their self-control which can cause them to act impulsively.

⁹ Sendil Mullainathan and Eldar Shafir. *Scarcity: Why Having Too Little Means So Much*. New York, New York: Time Books, Henry Holt & Company, LLC. 2013

Table 1: Executive Skills Defined

<p><u>Planning and Prioritization</u> Deciding what steps to take. The ability to create a road map to reach a goal or to complete a task. It also involves being able to make decisions about what is important to distinguish what is and is not important.</p>	<p><u>Task Initiation</u> Getting started without delay. The ability to begin projects without undue procrastination, in an efficient or timely fashion.</p>	<p><u>Stress Tolerance</u> Managing your stress. The ability to work in stressful situations and to cope with uncertainty, change, and performance demands.</p>
<p><u>Organization</u> Knowing where I put things. The ability to create and maintain systems to keep track of information and materials.</p>	<p><u>Response Inhibition</u> Seeing the consequence before I say or do something. The capacity to think before you act – the ability to resist the urge to say or do something allows us the time to evaluate a situation and how our behavior might impact it.</p>	<p><u>Working Memory</u> Remembering what I did and what I need to do. The ability to hold information in memory while performing complex tasks. It incorporates the ability to draw on past learning or experience to apply to the situation at hand or to project into the future.</p>
<p><u>Time Management</u> Know about how long a task will take and what the deadline is. The capacity to estimate how much time one has, how to allocate it, and how to stay within time limits and deadlines. It also involves a sense that time is important.</p>	<p><u>Emotional Control</u> Keeping my cool when frustrated. The ability to manage emotions in order to achieve goals, complete tasks, or control and direct behavior.</p>	<p><u>Metacognition</u> Evaluating how you're doing. The ability to stand back and take a bird's eye view of yourself in a situation, to observe how you problem-solve. It also includes self-monitoring and self-evaluative skills (e.g., asking yourself "How am I doing?" or "How did I do?")</p>
<p><u>Sustained Attention</u> Paying attention, even when I don't feel like it. The capacity to maintain attention to a situation or task in spite of distractibility, fatigue, or boredom.</p>	<p><u>Goal-Directed Persistence</u> Sticking with your goal. The capacity to have a goal, follow through to the completion of that goal, and not be put off or distracted by competing interests.</p>	<p><u>Flexibility</u> Going with the flow, accepting change. The ability to revise plans in the face of obstacles, setbacks, new information, or mistakes. It relates to adaptability to changing conditions.</p>

Table Key: Planning Skills, Self-Control Skills, Monitoring Skills

Increased exposure to situations that compromise executive function skills. Living in poverty also puts individuals at greater risk of experiencing situational factors that impair their executive function skills. Those situational factors include stress, lack of exercise, lack of sleep, lack of social connections and poor nutrition.

Added complexity of accomplishing common adult tasks. Limited transportation and child care options, constantly changing work hours and schedules, unstable pay, and complicated processes for obtaining and maintaining public benefits all require highly developed executive function skills. It takes much greater planning, organization and time management skills if you have to get your kids to daycare and yourself to work via public transportation than via a car, for example.

An Executive-Function Informed Approach to Goal Achievement: Goal, Plan, Do, Review/Revise

In order to make this information accessible and actionable for practitioners, we have integrated these various approaches into one comprehensive adaptable multi-step framework -- Goal, Plan, Do, Review and Revise (GPDR/R) that makes explicit the steps that lead to successful goal achievement and provides guidance on how to increase the successful execution of each step.¹⁰

The Relationship between Executive Function Skills and Goal Achievement

Executive skills are important because they are the skills we need to direct our behaviors and achieve our goals. By better understanding the link between executive skills and goal achievement, we can more effectively target our limited resources to activities and actions that will best support program participants in setting and achieving their goals. In Table 2 below, we combine Dr. Zelazo's representation of the goal achievement process (using language that is more consistent with language used by employment and related human service programs) with Dawson and Guare's detailed list of executive skills to illustrate that each part of the goal achievement process draws on a different set of skills. Below, we provide a more detailed description of the role executive skills play in successfully executing each part of the goal achievement sequence.



¹⁰ Center on Budget and Policy Priorities. "An Executive Function-Informed Goal Achievement Framework for Use in Human Service Programs." August 2008.

Table 2: The Relationship between Executive Function Skills and Goal Achievement

Goal Achievement Process	Executive Skills Most Relied Upon
Goal	Metacognition, working memory
Plan	Planning/prioritization, organization, time management, working memory
Do	Task initiation, response inhibition, time management, sustained attention, working memory, flexibility, organization, persistence, stress tolerance, emotional control, cognitive flexibility
Review & Revise	Metacognition, working memory, flexibility

- Goal:** We use working memory to remember past experiences and metacognition to evaluate those experiences. That's what helps us to come up with goals that are meaningful – we avoid things that we don't like and do more of what motivates us to move forward. Successfully helping a participant identify a meaningful goal requires helping them identify what matters most and what successes and strengths they can draw upon to maximize their chances of success.
- Plan:** Our planning and prioritization skills are what help us to break goals down into the small steps. We use our organization skills to gather the resources we need to complete a task and to keep them in a place where we can find them. We use time management skills to help us estimate how long a task will take and to decide when we will do it. We draw on working memory to identify what else we need to do and to remember the steps so we can prioritize them. One of the most important things we can do when working with participants is to help them break big goals down into small steps that allow them to experience success from the very beginning of the process.
- Do:** Executing a plan draws on many executive function skills, most of which involve practicing self-control to direct our behavior in a purposeful way. Task initiation allows us to get started on a task. Time management allows us to wisely use the time we have available. Response inhibition allows us to avoid distractions and stay focused on the task at hand. Sustained attention helps us to stick with a task until it is complete. Goal-directed persistence helps us to complete each step along the way until we've reached our goal and to stick with the goal even when the going gets rough. Stress management helps us to not get too overwhelmed when faced with competing demands and to proactively identify ways to reduce the stress in our lives. Emotional control help us to keep our emotions in check. When we encounter stumbling blocks, it is cognitive flexibility that allows us to

problem-solve to keep us on track. Much of the responsibility for doing a plan lies with the participant, but providing continued reminders and support and encouragement can do a lot to help them stay focused on what they are trying to accomplish.

- **Review & Revise:** When reviewing our progress towards a goal, we once again draw on working memory and metacognition skills which help us to remember what we did (or didn't do) and why and assess what did and didn't work. When revising a goal, we also draw on cognitive flexibility as that is the skill that allows us to abandon goals that are too hard or no longer meaningful to us and come up with new goals – or to develop a new plan if the previous one didn't produce the results we wanted. We also draw heavily on metacognition because we are digging deeper into what matters to us and using it to plan for the future. We often don't take the time to review with participants what they accomplished and to help them decide what they want their next steps to be, but it is a critical step in the goal achievement process.

Successful Execution of Each Step of the Process: The Role of Employment and Human Service Programs

Workforce and related human service programs play an important role in helping people to set and achieve their goals. But, using what we know about the importance and development of executive function skills requires doing that work differently. In particular, it requires that we let participants drive the process and that staff take on the role of facilitator – helping participants to identify what matters to them and helping them to see how they can use the program resources to reach (or come closer to reaching) their goals. In piloting this work, staff reported that, when asked what their goals were, participants often responded by saying that no one had ever asked them that before. Doing this work requires more listening and less telling people what to do.

Goal: Looking to the Future. Goal setting is at the heart of many employment and human service programs. It is the process of identifying something we want to achieve so that our actions can be directed to that aim. Setting goals anchors us to the future, building the motivation that gives meaning and purpose to each of the steps we need to take to get where we want to go. In short, goals are what give direction to our actions – and to our lives. Human service workers play a key role in creating relationships that activate client motivation and the commitment to change. Program staff act as facilitators, guiding program participants through a process of self discovery, resisting at every turn the urge to set goals for participants and to tell them how to achieve them.

Plan: Creating a Roadmap for Change. Human services staff can help participants become really good planners – a critical skill that is at the core of successful goal achievement. A well-crafted, detailed plan works as a self-control device; research shows that individuals are much more likely to follow through with a task (which often means ignoring competing demands) if they have written down the details and have identified and thought through how they will respond to obstacles *before* they occur. Staff can simplify the planning process by thinking through the steps ahead of time for common tasks. Key to teaching planning is following the same process every time and repeating the process over and over again.

Do: Put the Plan Into Action. Executing the plan for our goal is when we move from *intention* to *action*, and it is when participants often have the least amount of direct support. Programs

can set participants up for success by creating detailed plans, thinking through potential potholes and detours along the way, and rehearsing plans before they are put into practice. The responsibility for “doing” the plan rests primarily with the participant, but you can still help to increase their chances of success. Doing the plan is all about self-control – it is about directing one’s behavior towards achieving one’s goals – and that means not getting derailed by all the things that can easily distract us from staying focused on what we are trying to achieve.

Review and Revise: Looking Back, Moving Forward. Achieving goals is an iterative process. It is not uncommon for us to set our sights on a goal and then decide it’s not the right goal after all. Similarly, our plans don’t always work as we expect. It is for this very reason that review and revise are included as explicit steps in the goal achievement process. By including them from the beginning, changes become a regular part of the process and are less likely to be viewed as failures. Though reviewing and revising plans often happens during the same meeting, they are separate processes that deserve their own time and attention. When we take a step back to review our progress and to think about what worked well and what we could do differently, we are building critical skills to use throughout the goal achievement process. When we reflect on what we accomplished (or didn’t), we develop a better understanding of ourselves which allows us to build on our strengths and develop more effective strategies for overcoming our weaknesses. It is not enough to simply review how we did, we need to use what we learned to keep moving forward towards something that matters deeply to us. The more you encourage participants to review their progress and make changes when needed, the more likely it is to become a process they do regularly on their own.

Conclusion

Over the last several decades, there have been a plethora of rigorous studies of programs designed to improve the life circumstances of disadvantaged adults – especially single mothers, for whom employment often is their only potential source of income. The majority of these evaluations show no or modest impacts on participants’ outcomes. This means there is significant room for improvement in our current approaches to helping disadvantaged adults. This also means that there is little risk to considering new ways of designing and delivering these programs. What we have learned from brain science provides a starting point for beginning to think about new ways of designing and delivering services. The case for doing so is compelling. We are in a political and fiscal environment where we are unlikely to see significant new investments in safety net programs. Thus, it is important that we look for more effective ways to help program participants build both the hard and soft skills that they need to succeed over the long-term.

References

- Bunge, Sylvia. “Executive Functions: Why Do They Matter, and How Do We Measure Them?” Presentation given at U.S. Department of Health and Human Services Meeting on Executive Function. Washington, D.C.: U.S. Department of Health and Human Services. February 10, 2014.
- Center on Budget and Policy Priorities. “An Executive Function-Informed Goal Achievement Framework for Use in Human Service Programs.” August 2008.
- Dawson, Peg, and Richard Guare. *The Smart but Scattered Guide to Success*. New York, New York: The Guilford Press. 2009.
- Diamond, Adele. “Want to Optimize Executive Functions and Academic Outcomes? Simple, Just Nourish the Human Spirit.” *Minnesota Symposia on Child Psychology. Developing Cognitive Control Processes: Mechanisms, Implications, and Interventions*, Ed. Philip David Zelazo and Maria D. Sera., Minneapolis, MN: Wiley & Sons, Inc., 2014.
- Diamond, Adele. (2013). Executive Functions. *Annual Review of Psychology*. 2013.64:135-168, 2013.
- Goldstein, Sam and Jack A. Naglieri, Introduction: “A History of Executive Functioning” (Sam Goldstein, Jack A. Naglieri, Dana Princiotta and Tulio M. Otero) in *Handbook of Executive Functioning*. New York, New York: Springer, 2014.
- Hamilton, Gayle *et al.*, “National Evaluation of Welfare-to-Work Strategies: How Effective Are Different Welfare-to-Work Approaches? Five-Year Adult and Child Impacts for Eleven Programs,” Manpower Demonstration Research Corporation, December 2001, Table 4-2.
- Miller, Cynthia *et al.* “Effects on Adults: Final Report on the Minnesota Family Investment Program.” MDRC, September 2002.
- Meckstroth, Alicia, Andrew Burwick, Quinn Moore and Michael Ponza. “Teaching Self-Sufficiency Through Home Visitation and Life Skills Education.” *Trends in Family Programs and Policy, Issue Brief #3*. Princeton, NJ: Mathematica Policy Research, 2009.
- Mullainathan, Sendhil and Eldar Shafir. *Scarcity: Why Having So Little Matters So Much*. New York: Henry Holt and Company. 2013.
- Shonkoff, Jack P. and Philip A. Fisher. Rethinking evidence-based practice and two-generation programs to create the future of early childhood policy. *Development and Psychopathology*, 25 (4, part 2), 1635–1653. Copyright Cambridge University Press, 2013.
- Zelazo, Philip David. “Executive Function and the Developing Brain.” Conference Presentation: Connecting Brain Science to Practice, St. Paul, MN, November 20, 2013.