



## Early Child Development Toolkit: The Core Story of Child Development

*FrameWorks has engaged in research throughout the United States to translate for the lay public the core scientific story about Early Childhood Development, as developed with our collaborators on the National Scientific Council on the Developing Child. The following is an outline of the key elements of this core story of child development drawn from the framing research.*

### WHY CHILD DEVELOPMENT MATTERS (Values)

The story of early child development begins by establishing that the healthy development of children is a collective concern. The values outlined below are those that successfully orient the public to consider what's at stake.

- **PROSPERITY** The future prosperity of any society depends on its ability to foster the health and wellbeing of the next generation. When a society invests wisely in children and families, the next generation will pay that back through a lifetime of productivity and responsible citizenship.
- **INGENUITY** Innovative states and communities have been able to design high quality programs for children. These programs have solved problems in early childhood development and shown significant long-term improvements for children – but many places still don't have access to these innovations.

### WHAT DEVELOPS

Because most people lack an understanding of child development, they cannot fully appreciate why programs and policies are needed, let alone which ones would make the best contribution. To help them make this assessment, they need to understand that brains are, in fact, being built, and that environments of relationships and experiences can either promote or derail development. In the case of *what* develops, a metaphorical or *simplifying model* of brain development

improves understanding and allows people to reason about how particular programs and policies enhance development.

- **Brain Architecture.** The basic architecture of the human brain is constructed through an ongoing process that begins before birth and continues into adulthood. Like the construction of a home, the building process begins with laying the foundation, framing the rooms and wiring the electrical system in a predictable sequence. Early experiences literally shape how the brain gets built; a strong foundation in the early years increases the probability of positive outcomes. A weak foundation increases the odds of later difficulties.

Once Brain Architecture is established, there are several ways to deepen understanding of what develops:

- **Can't Do One Without the Others.** You can't focus on developing just one part of the child without paying equal attention to the other capacities. Cognitive, emotional and social capacities are tightly connected throughout the life course. Being an interactive organ, the brain utilizes some functions to enrich others. Language acquisition, for example, relies on hearing, the ability to differentiate sounds, and the ability to pay attention and engage in social interaction.

For those seeking to explain the importance of executive function – the cognitive process that regulates an individual's ability to organize thoughts and activities, prioritize tasks, manage time efficiently, and make decisions – the following simplifying model helps the public understand and apply this concept:

- **Air Traffic Control.** Children's ability to focus and pay attention, or executive function, is like Air Traffic Control at a busy airport. Some planes have to land and others have to take off at the same time, but there's only so much room on the ground and in the air. Executive function regulates the flow of information and the focus on tasks, creates mental priorities and avoids collisions, and keeps the system flexible and on time. In children, this mechanism needs to be actively geared up as early as possible.

## HOW BRAINS GET BUILT

The story continues with an explanation of how children's brains develop. The "Serve and Return" simplifying model is critical to make visible the interaction between genes and environments.

- **Serve and Return.** The interactive influences of genes and experience shape the developing brain. The active ingredient is the "serve and return" relationships with their parents and other caregivers in their family or community. Like the process of serve and return in games such as tennis and volleyball, young children naturally reach out for interaction through babbling and facial expressions. If adults do not respond by getting in sync and doing the same kind of vocalizing and gesturing back at them, the child's learning process is incomplete. This has negative implications for later learning.

Understanding the emerging science of epigenetics further explains gene-environment interaction.

- **Gene Signature.** The epigenome is like a signature on our genes. Our genes have instructions on them that tell our bodies how to work; however, the environment has to sign for the instructions first. Positive experiences, such as good nutrition, are environmental signatures which authorize instructions to be carried out. These can lead to positive development. Negative experiences, such as exposure to toxins, are environmental signatures which can't authorize the right instructions, or which sign for the wrong ones. These can lead to poor development. Because this environment's signatures on a person's genes can last a lifetime, it's crucial that the genes get positive signatures early on.

Building on the concept of functioning, communicators can explain child mental health using the Levelness simplifying model.

- **Levelness.** Scientists say that children's mental health affects how they socialize, how they learn, and how well they meet their potential. One way to think about child mental health is that it's like the levelness of a piece of furniture, say, a table. The levelness of a table is what makes it usable and able to function, just like the mental health of a child is what enables him or her to function and do many things. Some children's brains develop on floors that are level. This is like saying that the children have healthy, supportive relationships, and access to things like good nutrition and health care. For other children, their brains develop on

more sloped or slanted floors. This means they're exposed to abuse or violence, have unreliable or unsupportive relationships, and don't have access to key programs and resources. Remember that tables can't make themselves level – they need attention from experts who understand levelness and stability and who can work on the table, the floor, or even both. We know that it's important to work on the floors and the tables early, because little wobbles early on tend to become big wobbles later. So, in general, a child's mental health is like the stability and levelness of a table.

### **HOW IT GETS DISRUPTED:**

Next, the narrative needs an antagonist, or an explanation of how development can go wrong.

- **Toxic Stress.** Chronic stressful conditions such as extreme poverty, abuse or severe maternal depression – what scientists now call “toxic stress” – can also disrupt the architecture of the developing brain. This can lead to lifelong difficulties in learning, memory and self-regulation. We know that children who are exposed to serious early stress develop an exaggerated stress response that, over time, weakens their defense system against diseases, from heart disease to diabetes and depression.

### **WHAT ARE THE CONSEQUENCES:**

- **Pay Now or Pay Later.** Trying to change behavior or build new skills on a foundation of brain circuits that were not wired properly when they were first formed requires more work and is less effective. Remedial education, clinical treatment and other professional interventions are more costly and produce less desirable outcomes than the provision of nurturing, protective relationships and appropriate learning experiences earlier in life. The exaggerated neurological response to toxic stress never goes away, with costly consequences for both children and society.

### **WHAT ASSISTS WITH OPTIMAL DEVELOPMENT**

The story concludes with a focus on what works to ensure all children develop well.

- **Effectiveness Factors and Measuring Return on Investment.** We can measure “effectiveness factors” that often make the difference between programs that work and those that don’t work to support children’s healthy development. Without these effectiveness factors, some children can spend just as many hours in a program, but not show many positive outcomes. In addition, we can evaluate the efficiency of programs for young children by comparing the benefit of the investment to the cost. This allows a reliable comparison between programs that don’t improve child development and those that show real results.