Cognitive Development: An Introduction

The first eight years of life are an amazing time for the human brain. More brain development happens during the early childhood years then during any other period in life. Infants and toddlers develop basic cognitive skills that evolve into complex cognitive skills that young school age children use, which will carry them through school and beyond. The strong foundational cognitive skills young children develop prepare them for learning as teens and adults. When you support the developing brain you are building a strong foundation for future school and life success.

As an adult, you have already developed many of the thinking skills that help you navigate the world around you. Think about the skills and strategies that have helped you succeed at daily tasks like:

- Reading and following the recipe for a new meal
- Finding a different way home when traffic is heavy or there are issues with the MTA
- Estimating the amount of material you'll need for a home improvement project
- Finishing a book and discussing it with friends
- Filling out a job application
- Fixing a leaking faucet or pipe
- Budgeting for groceries and other essentials

What thinking skills helped with these kinds of tasks? Reading, writing, measuring, calculating, problem-solving, hypothesis testing, comprehending, and recalling facts all are essential for many of the tasks you accomplish every day. You started developing those skills as a young child, and they continue to develop as you encounter new situations as an adult.

Children birth-to-eight-years-old are just beginning their own journeys, but their brains are developing in amazing ways. The work you will do each day lays the foundation for the children to develop the thinking skills they need to be successful in school and life.

What is Cognitive Development?

Cognitive development is all about learning. When an infant/ toddler imitates an adult, that's cognitive development; when an infant/ toddler makes a "ruff" sound when they see a dog, that's cognitive development; and when an infant/ toddler smiles upon hearing a familiar voice, that's cognitive development. When a preschool age child builds a tower out of blocks, that's cognitive development; when a preschool age child imitates a peer, that's cognitive development; and when a preschool age child pretends to be a cat or a daddy, that's cognitive development. When a young school-age child solves a math problem, that's cognitive development; when a young school-age child questions something she has read, that's cognitive development; and when a young school-age child makes a snack or learns to knit, that's cognitive development. Cognitive development happens all the time and is influenced by both our genes and our experiences. According to Dodge, Colker, and Heroman (2002), "Cognitive development refers to the mind and how it works. It involves how children think, how they see their world, and how they use what they learn." While the brain can be influenced at any age, it is the most pliable in the early years.

Scientists no longer debate which is most important, genetics or experience; the same is true for which developmental domain is most important. All of the domains of development are important, and they are inextricably linked. Carol Dweck of Stanford University says, "We can't carve people up-there isn't the cognitive person, the emotional person, the motivational person, the social person. All of these co-occur in the brain" (Galinsky, 2010).

The Importance of the Early Years

Brains are built over time, and each experience affects growth and development. Who children become has everything to do with the experiences they have early in their lives; the experiences they have while they are in your care. Outside of their families, early childhood professionals are the people young children spend the most time with during these critical years of development.

Learning is both individual and social and takes place within social and cultural contexts. Cognitive development is strengthened when children are healthy, emotionally secure, and socially connected. Children who accumulate negative experiences carry those effects with them throughout their lives. In other words, experiences last a lifetime. Therefore, early childhood professionals must make sure:
- They are healthy by keeping a clean environment and promoting healthy habits
- They are emotionally secure by responding to their cues and addressing their needs immediately in a nurturing manner
- They are socially connected by fostering relationships between them and others during play and caregiving routines

Early experiences are powerful; children who accumulate negative experiences in their early years carry the effects with them throughout their lives. In other words, early experiences last a lifetime. Remember that while you are changing diapers, helping wash hands, picking up toys, singing songs, cleaning up spilt milk, and performing all of the other tasks you do on a daily basis; you are also influencing a developing brain.

What to Do?

Young children are active learners. They learn by doing: exploring, moving, smelling, touching, doing, pretending, and testing themselves. Cognitive development is built on other areas of development, such as visual skills, thinking skills, and memory, and the experiences offered across areas of development contribute greatly to development and learning. Young children learn from your interactions with the, the you use words, and what and how you do things. Review the strategies listed below that highlight ways to support cognitive development for the young children:

Infants/ Toddlers
- Touch, cuddle, and sing to babies and toddlers.
- Read to infants and toddlers. Let them explore the pages, illustrations, and textures. Talk about colors, sizes, shapes, and other features of the book.
- Provide toys that make simple, pleasant noises such as rattles and shakers. Help infants discover the connection between their movements and the noises. Talk with

toddlers about the different sounds objects make-compare the sounds of different drums, bells, or shakers.

- Place shatterproof mirrors and infants' and toddlers' eye level. Describe their movements as they explore their own images.
- Engage the senses! Talk about the taste and smell of bottles or food. Offer easy-to-clean chew toys with a variety of textures. Consider mats or soft spaces with different fabrics.
- Hold and rock infants and toddlers to communicate reassurance and comfort
- Play simple movement games like, "Row Your Boat", "Pat-a-Cake", and "How Big is Baby? Soooo Big."
- Extend the sounds and words used by infants and toddlers; for example, if a toddler says, "Me home," you might say, "You want to go home. After snack time, Daddy will be here to pick you up and go home."

Preschool Age Children:

- Provide a variety of acceptable choices. Letting young children decide what to play with, read, eat, and who to play with can help them build the cognitive and self-regulation skills they need.
- Sing rhyming songs and read books throughout the day. Take time to play with language during free play, transitions, and throughout the day. Children think it's fun to make up silly rhymes, but they are also learning!
- Respond honestly to children's questions. Young children are famous for asking, "Why?" When you don't know the answer, suggest that you and the child research the answer to the question.
- Look for simple math problems throughout the day. "Hmmm. We've got four children at this table and two bananas. What could we do to make sure everyone gets some banana?" Lead the children to think about math concepts like dividing objects in half. Practice counting while setting tables.
- Read alphabet books and talk about letters and the sounds they make.
- Talk about sizes, shapes, and colors. Compare objects using words like "big", "bigger", "biggest" and "light" and "heavy." Point out shapes you see around you: octagon stop signs, rectangle doors, circle light fixtures, and square floor tiles. Play "I Spy" in your building to find objects of different sizes, shapes, and colors.

Young School-Age Children:

- Provide a variety of materials that capture children's interest and provide a challenge. Model airplanes, jigsaw puzzles, musical instruments, woodworking, and crafts can all provide chances for school-agers to exercise cognitive skills.
- Make sure plenty of books and writing materials are available. Provide interesting, age-appropriate fiction and non-fiction. Also provide reference materials that children can use to research topics that interest them. Provide a comfortable, quiet space for reading and writing.
- Use age-appropriate technology with adult supervision. School-age children can play games on the computer, learn to write code, and use the internet to research interests.
- Give school-agers a sense of ownership. Involve them in making decisions about changes to the facilities (e.g., what plants to grow in the lobby, whether to build an outdoor stage, etc.). Provide authentic responsibilities like caring for plants and cleaning up program spaces.

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