

INSIGHT

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Building A Bright Future

EARLY YEARS CRUCIAL TO BRAIN DEVELOPMENT

By Tamara Koehler
SCRIPPS HOWARD NEWS SERVICE

BRAIN TRAINING STARTS EARLY
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An infant is staring at his mother's versatile face, not a trace of understanding in his still-focusing eyes. And yet, behind that wide-eyed gaze and soft cap of bone, an electrical storm is taking place.

Deep inside the 1½-pound infant brain, millions of wispy circuits are zapping and firing, paving electrical roads and bridges that will carry the heavy traffic of learning, questioning and creating throughout life.

The first five years of life is, arguably, the richest period for learning — a short but spectacular window of time when experiences such as a whisper, a hug and a bedtime lullaby literally change the architecture of the developing brain.

"We now have concrete images of the way the brain is hooked up early in life, and it is truly a remarkable period like no other in life," said Dr. Harry

Chugani, a neuroscientist at Children's Hospital of Michigan in Detroit.

Recent scientific findings have enhanced learning about brain development and proven what may sound like common sense to many: Young children are greedy learners whose brains soak up all the language, information and behavior they experience in the world around them.

There are brief and early "critical periods" when parts of the brain that control vision and language are open to stimulation, then close forever. There are somewhat longer "sensitive periods" for learning math, music and second languages.

The extraordinary development of the human brain begins a few weeks after conception. Neurons — the brain cells that store and send information — begin multiplying

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PHOTOS BY SCRIPPS HOWARD NEWS SERVICE

Jacob Boss, 3, has a snack after a nap at the Quaker-run School for Friends in Washington. The school expects parents to get involved, and teachers focus on social skills along with traditional lessons

Parents Nurture Vital Growth

EVERYTHING BECOMES A LEARNING EXPERIENCE FOR IMAGINATIVE 3-YEAR-OLD

By Jessica Wehrman
SCRIPPS HOWARD NEWS SERVICE

WASHINGTON — At nearly 3 years old, Jacob Boss is very much his own man.

Ask him if he's Jacob, for example, and he'll deny it. He picks a different person or creature to be nearly every day, changing personas like sweaters.

He is an explorer, clambering all over jungle gyms and couches. He is a comedian, who will top off a performance on his cousin's karaoke machine with a deep, vaudevillian bow. He is, in his own words, a crocodile-cheetah, a mean one, and he'll back it up with the fiercest of growls, tiny teeth bared.

In Jacob's world, you can be a crocodile, a cheetah, or a combination, if you want. It's a world where the neighbor's rose bushes are thorny and a little intimi-

dating, and where mom and dad are the most engaging of playmates.

If, as Dr. Todd Risley of the University of Alaska says, the chatter between a parent and a child is a dance, the Bosses are living a veritable ballet.

Jennifer and Mark Boss understand that these early years are a vital time for Jacob's rapidly developing brain, and they do what they can to support that.

They understand that playing can be educational. So they indulge him when he piles mounds of cushions on the living room couch to create a zoo, jail or castle.

They are big on talking, whispering in his ear when they sit down to watch television together, asking him about his day when he sits at the supper table.

Jacob's whole world is a giant why, and he means to get to the



Supper time at the Boss household typically includes Jacob's unique take on prayer, which involves a little group cheer. Jacob sits with his mother, Jennifer, left, and father, Mark, right.

heart of it. His brain is a sponge, and the world is so many puddles, waiting to be sopped up.

The Bosses are comfortable fi-

nancially, living in a pristine townhouse on a quiet Washington street. They are well educated. Jen-

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MAKING THE MOST OF THE HUMAN MIND

In the past decade, new brain-imaging technologies have shown that: **It's nature, then nurture.** Genes provide each brain's basic building materials. The environment builds it through trillions of brain-cell connections made by sight, sound, smell, touch and movement. Positive experiences enhance brain connections, and negative experiences damage them.

Young brains work at warp speed. An infant's brain can form new learning connections at a rate of 3 billion per second. A child's brain uses twice as much glucose (fuel) as the brain of a chess master plotting three moves in advance.

Words work wonders. Babies whose mothers and fathers talk to them often have bigger vocabularies and tend to learn to read sooner and better.

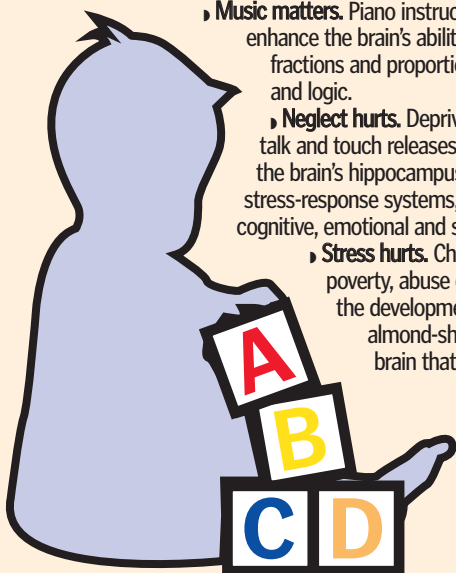
Movement matters. Children who spend too much time in playpens and not enough on jungle gyms don't develop the motor cortex area of the brain and, as a result, show poor school readiness.

Music matters. Piano instruction in particular can enhance the brain's ability to visualize ratios, fractions and proportions, and thus learn math and logic.

Neglect hurts. Depriving an infant of loving talk and touch releases steroids that damage the brain's hippocampus, which controls its stress-response systems, and can lead to serious cognitive, emotional and social problems.

Stress hurts. Chronic stress such as poverty, abuse or violence can impair the development of the amygdala, an almond-shaped area deep in the brain that houses emotion and memory. It also can confuse chemicals that moderate impulsive behavior, fear and aggression.

SOURCE: SCRIPPS HOWARD NEWS SERVICE



Pre-Kindergartens Help Prepare Children For Success



Marci Tench, 4, talks on her toy cell phone on March 19 while, from left, Andrew Best, 5, Austin Stevens, 5, and Xavier Rucker, 4, all of Hartwell, Ga., play an educational game on a computer.

MANY STATES SHOWING INTEREST IN FUNDING PROGRAMS

By Alison Glass
SCRIPPS HOWARD NEWS SERVICE

One 4-year-old entered Mandy Deal's pre-kindergarten class this school year not able to name different colors or shapes and not knowing her own last name.

Now the child can do all those things, plus write her first and last name and count to 20.

The 19 children in Deal's northeast Georgia classroom build towers with blocks, look at books and play learning games on computers. A child-sized table and a play stove are highlights of a well-equipped "house-keeping center" that teaches the basics of day-to-day living while also developing motor skills.

The children experiment, interact — and learn.

Across the country, scientists, advocates for children and policy-makers are arguing for more

classrooms like Deal's — classrooms that develop 3- and 4-year-old preschoolers mentally, emotionally and socially. They argue on the basis of recent brain science, which shows that what happens in a child's preschool years heavily influences how successful the child will be in school.

At least 40 states offer some type of state-supported pre-kindergarten — often for children from low-income families. All states mandate services for preschool children with disabilities.

No state offers universal preschool for 3-year-olds, but the idea of expanding pre-kindergarten programs to that age has received a lot of attention.

"In recent years, nothing in the field of public education has been more dramatic than the explosion of state interest and involvement in pre-kindergarten services," said

Walter Gilliam, a research scientist at Yale University.

"Even in these very tight budget times, these officials see it as important to make a down payment on this type of program," said Amy Wilkins, executive director of The Trust for Early Education. A report by the nonprofit Committee for Economic Development in New York says part-day, part-school year preschool costs \$4,000 to \$5,000 per child per year.

In Georgia, every 4-year-old has been eligible since 1995 for free, voluntary pre-kindergarten. The Georgia pre-kindergarten system began in 1992 as a limited pilot program. It expanded rapidly using state lottery money.

In September 1995, then-Gov. Zell Miller successfully pushed to make all 4-year-olds eligible for the program, adding more than

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TOMORROW

JOHN BRUMMETT ASKS, "WHAT HAPPENS WHEN DONKEYS FLEE?"

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