

Parent *pages*

A Growing
Christian
makes the
Best Parent!

Resources for Christian parents in the 21st Century

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Is Brain Science Mad Science?

The face of research in education is undergoing a rapid change due in part to innovations in the medical field. Special MRI, CAT, and PET machines allow us to “see” the brain at work while an individual completes a task. We now have a much better understanding of how a brain works, which parts of the brain are used for particular tasks, as well as how our brains develop from infancy.

Scientific research using control groups and experimental groups, analyzing results, and allowing for variables now seems archaic when compared to a machine that shows us, in living color, what a brain is doing. The question is: Should we throw out old research methods, theories of child development, and parental common sense in favor of the results of high tech pictures of the brain?

At 24 months, a child’s brain is thick with neural connections and dendrite growth. Learning happens quickly but there is little organization of information. At different points a child’s brain begins to prune back neural connections in an effort to organize and create dependable pathways for learning and memory. The development of a child’s brain can best be described as a series of growth and maturation, comparable to growing bushes and pruning them into a topiary garden.

Opening the windows

Brain research has begun to point to specific “windows” of opportunity for development of certain skills. It is understood that it is easier for a child to learn a second language than an adult because of a change in the language centers of the brain. But is this also true for learning experiences such as music or math? If our children have not begun music lessons by age 3, is it too late?



Developing brains have windows of learning opportunity called critical periods. God has programmed brains to concentrate on particular aspects of development at given times. Medical brain research supports widely accepted theories of child development such as the work of Piaget. In other words, what we have been able to deduce from behavior is now being supported by PET scans that show brain activity.

Newer evidence suggests that children have periods in brain development when certain learning happens. When that period is past, the opportunity to learn that skill fades. For example, newborn babies up until six to 10 months can discriminate every speech sound. By 10 months they can only discriminate the sounds necessary for the language they are actively learning. This is why we struggle with pronunciations when learning a second language later in life. Sometime around six to 10 months of age, our window for learning to discriminate and replicate these speech sounds closes.

From that point on we can only approximate those sounds.

Using a pruner

Neural pruning is the reason why windows on critical periods close. In the pruning process the brain sacrifices neural connections to make particular pathways stronger. If our brains had not pruned the auditory discrimination area of our brains at that critical period, we would not have continued to learn language. A child’s brain is in a constant state of creating neural connections and pruning them back to make stronger pathways. Also, there are some major times of pruning when we are likely to see a spurt of brain growth. The last of these happens during the 18th year, right about the time we send them off to college.

While the flexibility of the brain is limited, it is not helpful to think of the brain as a lump of clay that gradually hardens from the outside in. Assuming that once it is dry we might as well fire it in the kiln because

we can no longer mold or shape it. This is not an accurate model of the brain. First of all, the process of a closing window is not instantaneous; it is a gradual process and the window does not necessarily completely close. The critical period for music learning starts at a very young age and it is true that those who begin formal music training before their teenage years will have the most success learning their instruments. However, we can continue to learn about music for the rest of our lives.

The danger in brain research and critical periods of development is letting this information become “law” in our parenting. A child’s brain development does not follow a chart of when to start lessons, how long to continue practice, or a “do and don’t” list of activities. It is not a matter of reading the right book and realizing that it is too late for Molly to be a virtuoso on the oboe but we should probably get Jason signed up for martial arts before his next birthday so as not to stunt his athletic growth. Research in brain development is a guide to understanding, not a list of requirements.

God’s Love

Our relationship with God includes both Law and Gospel. His law is a set of commands that are designed for our own good, and to allow us to live in a Christian community with peace and love. God requires perfect adherence to His law, nothing less. He requires this because it is the only way for us to be healthy and to fulfill His purpose for us.

Here is the beauty of God’s love for us in that He knows we cannot follow His law, so He surrounds us with grace and the salvation of the Gospel. Thus we are

God’s law comes first

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constantly reminded of our eternal need for Him and of His infinite love for us. God’s parenting instructions are summed up in the act of salvation. Our relationship with our children should be one of Law and Gospel as modeled for us by our heavenly Father.

Prov. 22:6 tells us to “*Train a child in the way he should go, and when he is old he will not turn from it.*” The Concordia Self-Study Bible indicates that “dedicate” is an alternate translation of the word for “train.” This process begins when God welcomes our child into His family through the Word and water of Baptism, and continues as He helps us raise each child. It is not a list of “shoulds and shouldn’ts” as it is a process of modeling and teaching God’s Word. With God’s help we dedicate our children to Him as we walk with them in their faith development.

Law and Gospel

What can we learn from current research on the brain? God’s Word helps us understand what research is teaching us; namely, that we constantly concern ourselves with

training our children. The activities in which your child participates, from lessons and reading to television and video games, influence the pruning process. Do we want the television watching part of the brain to be stronger than the science exploration part? Do we want media messages found in everything from advertising to music to have a greater influence on pruning than exposure to God’s Word?

The brain of a child is constantly growing and maturing. As parents we need to pay attention to what we are feeding into the brain as well as the amount of time spent in each activity. This is our message of law.

At the same time there is a Gospel message connected with brain development. The living human brain is plastic, not hardening clay. Parenting mistakes can be corrected; new things can be learned at any point in our development. God is a powerful and gracious God. He heeds our request for help in the development of the little ones entrusted to our care.

Questions for discussion

1. Choose four or five activities and chart the amount of time your child spends on each activity. What parts of your child’s brain are being strengthened and what parts are in danger of being pruned back?
2. Is it ever too late to learn something new? Is it ever too early to begin learning something?
3. Identify the Law and Gospel demonstrated in Prov. 22:6. What is God’s promise?

Recommended reading

“Magic Trees of the Mind: How to Nurture Your Child’s Intelligence, Creativity, and Healthy Emotions from Birth Through Adolescence,” Marian Diamond, Ph.D., and Janet Hopson.

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