

Section 5: Middle and Late Childhood

Chapter 9—Physical and Cognitive Development in Middle and Late Childhood

Learning Disabilities (or Learning Differences)

The term “Learning Disability” (LD) refers to a group of disorders, weaknesses, or difficulties in a child’s ability to perform academic tasks (reading, writing, math, spelling, etc.). While *learning disability* is the most often used term, some professionals prefer *learning difference*, indicating that there is not something wrong with the child’s thinking, but that his/her brain is “wired differently” from the norm and s/he simply learns in a different way. (STCA, 2011) LD’s affect three times as many boys as girls, possibly because they are more genetically susceptible, or possibly because they are simply referred more often than teachers for assistance. (Santrock, 2011)

Causes. While the exact causes of LD’s are not known, we do know that they cannot be attributed to a visual/auditory/motor disability, mental retardation, emotional disorder, or environmental/cultural/economic disadvantage. LD’s are not caused by poor teaching or laziness. Rather, the LD child processes information in his/her own unique way. The more the child and his/her parents and teachers understand about what s/he needs to succeed, the more likely s/he will be to overcome the challenges.

New medical scanning techniques such as the SPECT scans developed by Dr. Daniel Amen, (Amen clinics, 2011) are beginning to reveal areas of the brain affected; but LD’s are more likely to involve information integration from multiple brain regions than to reside in a specific location in the brain. (Santrock, 2011) However, we do know that LD’s affect executive functioning in the prefrontal cortex. These functions include: organizational and planning skills; cause-and-effect thinking; impulse control (for example, starting an assignment before reading

the instructions); emotional control (the child's ability to manage how s/he thinks and feels about something as s/he is doing it, getting frustrated with or intolerant of their difficulties, etc.); flexibility (the ability to adapt to learning needs that are different from what the teacher expects); working memory (the ability to hold information and use it to complete a task; note-taking skills; etc.); and self-monitoring (checking one's own work; proofreading; budgeting time needed for an assignment; etc.). Interestingly, these are also symptoms of ADHD, and LD's often occur clustered with ADHD; however, they are not the same thing. (Horowitz, 2011)

Types of LD's. LD's can be categorized according to the stage of information processing or by the academic area affected. ("Wikipedia," 2011)

Stage of information processing. The brain processes information in four stages, any one of which can be affected by an LD.

- ***Input*** (information received through the senses) LD's include difficulties with processing auditory, visual, and tactile information; sequencing; and temporal perception.
- ***Integration*** (interpretation/categorization of input) LD's may affect the ability to sequence events, relate new concepts to those previously learned, or see the "big picture".
- ***Storage*** (memory) LD's can affect short- and long-term memory (mostly short-term), requiring the student to need many more repetitions than average to learn a concept.
- ***Output*** (language, writing, drawing, and muscle activity) LD's can interfere with the ability to answer questions, organize thoughts, and control gross and fine motor skills.

Academic classifications. LD's are commonly classified by affected academic skills.

- ***Reading LD's*** include *dyslexia* (an impairment in the ability to read and spell) and *hyperlexia* (a highly precocious ability to read and spell accompanied by difficulties in other areas).

About 80% of LD diagnoses concern reading problems, and intervention for all LD's often focuses on or at least includes improving reading skills.

- **Writing LD's** include difficulties in handwriting (*dysgraphia*), spelling, organization, and composition. My son Sean, in addition to being diabetic and having ADHD, has moderate dysgraphia that significantly interferes with his ability to excel in school.
- **Math disabilities** (*dyscalcula*) involve problems with computational skills.

Whatever the area of weakness, LD children are usually of average or above-average intelligence. (Warren, 2004)

Signs and Symptoms. LD's can be very difficult to diagnose, especially because they most often come "clustered" with other LD's and/or with issues such as ADD/ADHD. (Warren, 2004) No one child will have all possible symptoms; however, warning signs can include the list below. Everyone has some of these issues from time to time; an LD may be diagnosed when one or more of these occur repeatedly and significantly affect a child's daily life or ability to learn.

- Difficulty with open-ended test questions
- Weak memory skills
- Difficulty in adapting skills from one setting to another
- Slow pace of work; reluctance to attempt tasks
- Poor grasp of abstract concepts
- Inattention to or excessive focus on details
- Frequent misreading of information
- Trouble filling out applications or forms
- Easily confused by instructions
- Poor organizational skills. (Horowitz, 2011)

Personal experience. My son Sean had difficulty with handwriting from an early age, but I attributed it to the fact that boys generally develop fine motor skills at a slower pace than girls, and I never pushed him to write on the same level as he could read (he began to read at age

3). It was not until Dr. Warren diagnosed Sean's ADHD in the 3rd grade that I also learned that Sean has moderate dysgraphia. Dr. Warren was relatively unconcerned about it. I had instinctively adjusted my home schooling to fit Sean's needs, and was already providing the academic accommodations he required—doing as much work orally as possible, allowing him to dictate assignments that he was cognitively able to grasp but did not have the motor skills to accomplish, and allowing him to print and type rather than write.

Dr. Warren suggested only two modifications. First, I should abandon cursive with him altogether, only insisting that he be able to sign his name. For the dysgraphic child, he explained, handwriting is an artistic process that uses an entirely different area of the brain. These kids don't *write* their letters, they *draw* them—a much more neurologically complex task. Also, the age of writing fluency is about 12 to 14. At that age, his handwriting will be about as good as will ever get. Don't push for change after that—let it go.

Second, I should allow him to do as many assignments as possible on the computer. While both writing and typing involve brain/hand coordination, he explained, the neural pathway from the brain to the fingers that controls writing is more complex than the pathway that controls typing. So allowing the child to type instead of write can often bypass the LD completely. I found this to be dramatically true with Sean. Even today, at age 17, if he is asked to write a paragraph with a pen or pencil, his brain all but shuts down. As gifted as he is, he is unable to write a single coherent sentence. But if put in front of a computer, he can produce pages of articulate writing with little difficulty.

Working with LD students. Through “Twice Blessed” (the support group for parents of special needs kids that Dr. Warren led at our church) and through my involvement as librarian and substitute teacher at Saint Timothy Christian Academy (the private school “for children who

learn differently” that Dr. Warren founded only a few months before his death in 2006), I picked up the following miscellaneous tips and “Paul-isms” for working with LD students:

- LD children are very often unusually gifted and talented artists, athletes, architects, engineers, doctors, attorneys, etc. Look past the LD and discover the gift!
- LD children don’t need to work harder at traditional learning methods; they need an entirely new set of tools.
- LD kids benefit from a multisensory, oral language approach. AlphaPhonics is excellent.
- Homework is mostly useless. Children don’t need busy work. (Sean loves this one.)
- Parent-driven activities increase stress in children and promote low self-esteem. Children need play time and family time more than they need “extra-curricular activities”.
- It can be helpful to teach cursive from the beginning because cursive letters are not reversible. With dysgraphics who “draw” rather than write, cursive can be a hindrance.
- While schools especially designed for LD kids can be wonderful, make a decision and stick with it. Don’t school hop. Stability is better than finding the “ideal” solution.
- Reading aloud to kids is one of the best things a parent or teacher can do, especially with LDs. It establishes moral values, brings families together, and opens the world to the child.
- Latin is the best second language for dyslexics.
- No matter what else you do, supplement with high-quality Omega-3 fatty acids/fish oils.
- Get down on your child’s level and develop a relationship. The best treatment is relational. Meds are simply just good tools.

ADHD—Attention Deficit Hyperactivity Disorder

Before I became “The Mother of Sean-David”, I believed that ADHD was an imaginary disorder created for the benefit of pharmaceutical companies and public school teachers. After my little Taz arrived, I stubbornly clung to the illusion that hyperactivity was only abnormal for little boys when it caused them to actually *break* the sound barrier, as evidenced by a sonic boom (which Sean had only done once, so it could have been a fluke). All the same, I knew that this child would *never* do well in public school, so I home schooled him, still in denial that my little bull-in-a-china-closet was anything other than typical. But when in the third grade, he reached the point that he could no longer learn anything unless standing on his head (preferably while balanced on the sofa), I crumpled under the pressure and sought help.



Dr. Warren didn’t mince words after spending a half-hour with my child. “That boy,” he drawled with a calm certainty, “is as ADD as the definition will allow!” Then he spent another hour introducing Craig and me to *The World According to Sean*. We left the office with new hope, a sigh of relief, and a scribbled, non-refillable, void-if-not-filled-in-seven-days prescription for a controlled substance called Ritalin. An hour later... life changed.

Sunday morning, I tracked down the demi-god of behavioral pediatrics at church and tackled him with a bear hug in the Fellowship Hall. “*You are my hero!*” I almost sobbed. “I can’t believe it. Sean-David is acting like a *normal boy!*”

He smiled and gently corrected my assessment with words I will never forget. “*He is a normal boy!*” he assured me. “*He always was!*”

“Yes,” I agreed. “But *now* he is a normal boy who *does his math!*”

Beginning the next month, I began to attend Twice Blessed—the support group that Dr. Warren had founded and taught at our church for families of special-needs kids. (Sean, and later Rachael, who is mildly ADD, also attended Twice Blessed Kids Club, where they made friends, learned coping and social skills, and generally just had a grand time being the wonderful kids they are.) For three years, I didn’t just listen to Dr. Warren’s lectures, I studied—hard. I learned about ADHD and other learning differences, participated in discussion groups

with other Twice Blessed parents, read books, asked questions, learned about both medical and non-traditional treatments, and wrote down every word that man said until I had a set of journals two inches thick, a list of strategies that once again made home schooling possible, and enough detailed knowledge packed away in my mom-brain to make my later DSM-IV class at Amberton a mere review.

So if I lean a bit too heavily on him as a source in this and other questions, and border on an attitude of “hero-worship”, I must plead guilty on both counts. Dr. Warren may not be the only reason I chose to begin a counseling degree, but he is certainly my inspiration, and my standard of what a counselor should be. (See Appendix A.) And his teaching both fascinated me and revolutionized my relationships with my children.

What is ADHD? I’m so glad you asked....



Figure 18. Dr. Warren (far right) became such an important influence in Sean’s life that Sean asked him to be his baptismal sponsor.

Attention Deficit Hyperactive Disorder (ADHD) is a learning disability primarily characterized by inattention, hyperactivity, and impulsivity. Of course, these are characteristics of *all* children; but with ADHD kids, they are more severe and frequent. “ADHD kids don’t do abnormal things. They do normal things more often. They do normal things with dramatic intensity.” He also preferred the term “learning *difference*”. “There is nothing wrong with your children,” he consistently told his Twice Blessed parents. “Their brains are not broken. God has simply wired them differently. And training up a child in the way he should go means taking God’s design into consideration while you do it. Your child is fearfully and wonderfully made, and God designed him this way on purpose.” (Warren, 2004)

Characteristics. There are three types of ADHD, each with associated characteristics.

ADHD—predominantly inattentive (formerly ADD) children...

- have difficulty focusing; are easily distracted, miss details, don’t seem to listen
- become bored quickly, unless they are doing something of intense personal interest
- frequently switch between activities
- have difficulty organizing/completing tasks, turning in homework assignments
- are forgetful; often lose supplies needed to complete tasks or activities
- daydream, become easily confused, move slowly
- have difficulty processing information as quickly and accurately as others
- struggle to follow instructions.

ADHD—predominantly hyperactive/impulsive children...

- fidget, squirm, cannot sit still during dinner or school; have difficulty with quiet activities
- talk nonstop; often interrupt conversations or others’ activities.
- unusually high levels of physical activity, are constantly in motion; touch everything

- have difficulty with self-control; are impatient, blurt out inappropriate comments, display emotion without restraint
- act without regard for consequences
- have difficulty waiting their turns or waiting for things they want

ADHD (with both inattention and hyperactivity/impulsivity) children can have any or all of the above symptoms. (“NIMH,” 2009)

“ADHD kids,” says Dr. Warren, “do not have an attention problem, they have an attention *control* problem. When you put them in front of something they enjoy, they actually *over-focus*. You can’t drag them away.”

He also considered ADHD to be on the low end of the autism spectrum because ADHD children often lack the ability to see subtle signs of others feelings and etc., have difficulty interpreting others’ body language and feelings, have delayed and/or poor social skills.

Causes. While the root causes of ADHD are not understood, and it has not been proven to be hereditary, we do know that it has a definite physiological basis and tends to run in families. Research indicates it can result from brain damage occurring during pre- or post-natal development, possibly exacerbated by cigarette/alcohol exposure, and/or low birth weight, but these are not always factors. In any event, it often appears amidst the “three elements of a perfect storm of mental health in children”—poor nutrition, a fast-paced and structured lifestyle, and poorly-developed personal relationships. “Removing the relational element can always bring out problems in kids who have a predisposition towards it.” (Warren, 2004)

The Neurology of ADHD. In the past, it was assumed that a “bad” kid was simply the result of bad parenting. But ADHD is a very real disorder with observable physiological differences in the brain, especially in the surface and deep structures of the prefrontal cortex (PFC)—the portion of the brain that controls complex executive functions, including focus, attention, concentration, impulsivity management, and self-control. In children with ADHD, the neural activity in the PFC is sluggish; the electrical signals that carry information from cell to cell do not “fire” properly, so the child does not have normal access to these executive functions.



Figure 19. Neurotransmitters in the ADHD brain fire sluggishly, limiting the child’s access to PFC executive functions. Stimulants such as Ritalin can help restore the “firing” of these neurotransmitters to a normal level of functioning. (“NIMH,” 2011)

Since executive functions “bring all the functions of the brain into harmony,” a brain where they do not work properly can be “like a car with a great engine, but no steering wheel or breaks”. (Warren, 2004) In addition, a great deal of gross- and fine-motor control lies within the PFC. If a child has difficulty regulating motor activity, hyperactivity is the result.

Studies also show that the ADHD brain does not make as much dopamine (which helps regulate focus and attention, interprets social situations, etc.), and that the dopamine that is produced is not managed well, and is not well-received by the receptors of the brain. This impacts the PFC’s ability to focus on one task while being aware of other things, and thus its ability to prioritize and complete tasks while managing distractions.

Finally, the PFC is the core of what Dr. Warren calls “the wisdom network”—the last portion of the brain to mature, almost never before age 25. These functions include the ability to

“think outside the box,” to put things in context, to make mature judgments, to anticipate cause-and-effect situations, to understand moral and spiritual concepts, to choose behavior that will influence the future positively, to see what is not obvious, to “read between the lines,” to understand the rules of social conduct, to behave rationally in a crisis, etc. When the PFC is working sluggishly, this area is even slower to develop, so ADHD children are usually developmentally delayed in these areas.

The Cluster Effect. Diagnoses of “twice blessed” issues can be complex and difficult because they rarely stand alone, but almost always come “clustered” with other learning differences or overlapping psychological disorders. For example, almost all ADHD kids have learning differences because the math and language areas of the brain are nearby. Some 40% also struggle with depression, and 70-80% experience anxiety. (Warren, 2004)

Treatment. Because ADHD results from sluggish neural activity in the PFC, stimulant medications Ritalin and Adderall (and even caffeine) can be highly effective treatments. Stimulants increase production of neurotransmitters, thus increasing electrical activity in the brain, allowing the ADHD child to better access his/her self-control, decision-making, and the “wisdom center” in the PFC. This is why, paradoxically, giving a stimulant to a hyperactive child can actually calm him/her down—s/he now has access to self-control abilities.

Also, serotonin (the lack of which is usually associated with depression) promotes calmness, so sometimes serotonin meds can help control ADHD. Because many ADHD kids are also depressed (again, the cluster effect), serotonin meds can help in this way, as well.

On the other hand, medical treatment of ADHD is a hot topic. The number of children diagnosed/treated for ADHD has increased in recent decades. Even Dr. Warren stated that ADHD is the most over- and under-diagnosed and misunderstood disorder of childhood. And many parents believe (as I did) that ADHD is not a “real” disorder, and/or object to medicating

children to produce a desired behavior. There is a great deal of concern that children are being incorrectly diagnosed and overmedicated simply to ease parents' and teachers' frustrations. But the increase of diagnoses may also be due to increased awareness.

Developmental issues to consider when making medical decisions concerning ADHD. Although Dr. Warren never pressured any of his patients' families to choose medications, and was always supportive of and up-to-date on alternative treatments, he never hesitated to point out the developmental implications of leaving the condition untreated.

It is important to weigh the risks of medication (which research has shown to be minimal) against the serious, known risks of severe and unmedicated ADHD in the child's life. Because ADHD kids are almost always behind their peers in the development of social skills, and because ADHD is almost always clustered with learning differences and/or depression/anxiety issues, leaving it untreated simply for the sake of avoiding medication can have a greater negative impact on the child than using medication.

Some believe that using meds will sway their kids towards later drug use. However, studies overwhelming show that well-treated and -managed kids have much *lower* risk of abuse. Unmanaged ADHD kids, though, tend to self medicate with caffeine, alcohol, recreational drugs, sex, and/or anything else that can help them feel "normal". Ritalin and its derivatives, though (at least at the time of my last discussion with Dr. Warren) are by far the most studied medications used with children. There is no evidence that proper, medically supervised use has significant dangers, while not using it often leads to potentially dangerous self-medication and addictions.

Also, ADHD can impact development of the brain itself. Two things damage the "wisdom network"—substances such as alcohol and marijuana, and chronic anxiety, depression, and stress. Therefore, avoiding ADHD treatment can do more than frustrate the child, it can lead to slower development in the PFC. (Warren, 2004)

So when *is* it appropriate to seek medical intervention? When symptoms begin to regularly interfere with family, school, and interpersonal relationships. And the earlier an ADHD child learns to coordinate different functions of the brain successfully, the better off his/her life will be. The successful experiences will improve everything—relationships, self-worth, etc.

“The goal of medication is to help ADD kids learn to function with others, to be a part of a community where life becomes rich and productive. When difficulties with focus, attention, and impulsivity interfere with the ability to live harmoniously, medication might be the better answer. The ultimate goal is *relationships*, to remove the impediments to being part of the group.

“Not everyone needs meds, but some do benefit from them. Meds regulate the brain chemicals and help build up neural pathways. Meds are not curative, but they can help life lessons be more effective. They can help ADHD kids experience what is like to have control over the focus area of the brain, *and sometimes just knowing what that feels to have the PFC functioning normally can help the child learn to do it on his own.*”

Non-medical “helps” for ADHD. Even without stimulants, there are many things a parent and/or teacher can know and do to help an ADHD child in his/her development.

- “Screen-time”—videos of any sort, including TV, movies, and games—can make ADHD worse, because they stimulate and anesthetize the brain *at the same time*. Reading, conversation, and family time are far superior. (Warren, 2004) “Turn off the TV. For every hour a child watches, his chances of being diagnosed ADHD goes up 10%. If the body is the temple of the Holy Spirit, then the brain is the inner sanctum. Take care of it.” (Amen, 2003)
- Two things help the wisdom network learn: mentors and natural consequences. Mentors are invaluable. Most kids *can* benefit from a good mentor. ADHD kids *must* have a good mentor.
- Two things damage the wisdom network: Substances such as alcohol and marijuana; and chronic anxiety, depression, and stress.

- The wisdom network begins to function around age 16 but is not mature until around 25.
Keep this realistic expectation in mind when dealing with ADHD kids.
- ADHD kids do well in a structured, scheduled, ordered environment with specific direction.
Break down tasks into manageable steps, make lists, use timers/clocks, define expectations and enforce consequences. Consistency is more important than finding the best consequence
- ADHD kids need to have any and all good behavior reinforced.
- ADHD kids will improve better if you focus on one behavior at the time.
- ADHD kids benefit from all kinds of management tools.
- ADHD kids benefit from frequent breaks, standing, aerobic exercise, and physical motion.
- An appropriate diet can make a revolutionary difference. Limit sugars, include more protein and complex carbohydrates, and supplement with good multivitamins including the B complex vitamins, magnesium, and Omega threes.
- Direct the child in solving their own problems. Use lines such as, “So what are you going to do about that?” and “What is your plan to fix this problem?”
- Remember that ADHD kids develop at a slower rate. At age 8-9, the progress is slow. It increases at age 12-14. By college/graduate school, even ADHD kids reach maturity.
- Challenges are not unique to ADHD kids. They are constant and universal. Embrace them as opportunities for character development.
- Nearly all ADHD kids eventually turn out just fine! (Warren, 2004)

The “Upside” of ADHD. Although rarely discussed, ADHD offers some surprising benefits. “No one has a perfect brain,” Dr. Warren taught his patients’ parents. “Our culture expects kids to be good at everything, but no one was born for that. God has built an amazing neural network in each brain, and He can deal with weaknesses and use its strengths. Every ADHD weakness has a corresponding strength that every parent should recognize and nurture.”

Weakness: Focus and attention regulation. ADHD kids either under- or over-focus.

Corresponding strength: Multitasking. ADHD kids are better able to multitask and think outside the box; examples include Einstein, Edison, and Churchill. ADHD people tend to be the most creative; the vast majority of the world's greatest writers, musicians, artists, and geniuses are or were ADHD.

Weakness: Distractibility. ADHD kids' minds wander and they daydream constantly.

Corresponding strength: Creativity. ADHD kids are incredibly creative thinkers; they are not bound by linear thinking. Again, this trait has produced some of the world's most innovative artists and thinkers.

Weakness: Impulsivity. ADHD kids act impulsively, without thinking. ***Corresponding strength: dramatic intensity.*** They have extreme intensity in their responses, which enriches their deep creativity. These kids have incredible dramatic skills, they are never dull, and they never run out of creative energy. Some of them have become the world's great actors and actresses, dancers, and musicians.

Weakness: Hyperactivity. ADHD kids never stop moving. ***Corresponding strength: Productivity.*** ADHD kids have enormous productivity, and the tendency to over-focus helps their brains do great things. They can doggedly persevere at seemingly impossible tasks and succeed where others never would.

So if the negative aspects of ADHD are looked at in a positive light, and this amazing and endless creative energy of the wisdom network is channeled and nurtured by caring adults through mentoring and natural consequences, amazing results can be achieved. "ADHD parents often experience all the difficulties, but then miss the victory. They distance themselves when they should be celebrating their child's differences. Remember—the reward is always greater after much suffering. Persevere, and *celebrate* God's gifts." (Warren, 2004)