

Resources on Teaching, Learning, and the Brain

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On Teaching and Learning:

Teaching With the Brain in Mind, Eric Jensen, ASCD Books, 1998.

If you only have time for one book this is the one. Jensen's specialty is translating research for the lay educator. A well organized explanation of brain research related to learning with examples applying it to classroom instruction. Highly recommended. You can read a chapter online at

www.ascd.org/framebooks.html

Making Connections: Teaching and the Human Brain, Renate and Geoffrey Caine, Addison-Wesley, 1994.

One of the first books to directly connect brain research with teaching and still one of the best. If you can locate it, you will find the first edition (1991) is shorter and easier to digest.

A Celebration of Neurons: An Educator's Guide to the Human Brain, Robert Sylwester, ASCD Books, 1995.

An accessible explanation of how the brain works, by a former college professor of neuroscience, with commentary on the educational implications. An online chapter is available at the ASCD web site www.ascd.org/framebooks.html . Some of Sylwester's articles on the brain and learning written for the ASCD journal, *Educational Leadership*, are available at www.ascd.org/framelead.html .

Teaching for the Two-Sided Mind, A Guide to Right Brain/Left Brain Education, Linda Verlee Williams, Simon and Shuster, 1986.

The brain research is dated, but the ideas for instruction are excellent. There is an entire chapter on using metaphor to help student understanding .

Active Learning: 101 Strategies to Teach Any Subject, Mel Silberman, 1996.

For middle school through adult, suggestions for review, debate, discussion, questioning, even improving lectures.

Super Teaching: Success Strategies That Bring Out the Best in You and Your Students, Eric Jensen, Turning Point Press, 1995.

Over 300 pages of teaching strategies, for any level, that are compatible with the way the brain learns naturally. Easy to use and practical. Great ideas for the beginner.

Brain Compatible Strategies, Eric Jensen, Turning Point Press, 1997.

About eighty pages of short, one page summaries of various teaching strategies and activities that are "brain compatible."

Strategies to Inspire Active Learning, Merrill Harmin, Christopher-Gordon, 1996.

Good ideas for getting students involved and engaged in what they are doing in class. They are targeted to be effective with restless and resistant students.

***How The Brain Learns*, David Sousa, Corwin Press, 1998**

Written by a former teacher and school superintendent, it is in the same category as Jensen's *Teaching With the Brain in Mind*.

***Multiple Intelligences in the Classroom*, Thomas Armstrong, ASCD Books, 1994.**

A good, brief introduction to the subject, it covers theory, strategies, classroom environment and management, assessment, and special education issues in about 150 pages. A chapter is available online at www.ascd.org/framebooks.html . See also the September, 1997 issue of *Educational Leadership* with the theme "Teaching for Multiple Intelligences". Selected articles from the issue can be read online at www.ascd.org/frameedlead.html .

***In Search of Understanding: The Case for Constructivist Classrooms*, Jaqueline Grennon Brooks and Martin Brooks, ASCD Books, 1993.**

Describes the constructivist approach to instruction (with examples), which is a prerequisite for allowing students to acquire real deep understanding of important ideas and concepts. It is a practical companion to Howard Gardner's *The Unschooled Mind* (Basic books, 1992) which explains why most traditional instruction fails to dislodge student's preconceived and incorrect notions of how the world works. A chapter from the book can be read online at www.ascd.org/framebooks.html . The November, 1997 issue of *Education Leadership* had the theme "The Constructivist Classroom" and a few of the articles can be read online at www.ascd.org/frameedlead.html .

***Punished by Rewards: The Trouble With Gold Stars, Incentive Plans, A's, Praise and Other Bribes*, Alfie Kohn, Houghton Mifflin, 1993.**

A book about motivation. It explains why extrinsic, behaviorist reward systems eventually demotivate students. This book can totally change your views on the use of rewards but you will probably have to give up some deeply held beliefs about what motivates people.

***150 Ways to Increase Intrinsic Motivation in the Classroom*, James Raffini, Allyn & Bacon, 1995.**

Research based, teacher tested strategies that increase intrinsic motivation.

***Beyond Hands-On: Techniques for Using Color, Scent, Taste and Touch to Enhance Learning*, Linda Karges-Bone, Teaching & Learning Company, 1996.**

Suggests a multitude of multi-sensory activities to help promote memory and relaxed engagement, increase attention, and stimulate creativity in young learners, grades pre K-3.

***How People Learn: Brain, Mind, School and Experience*, John Bransford, Ann Brown, and Rodney Cocking, editors, National Academy Press, 1999.**

A summary report of the current research on learning. A chapter by chapter abbreviated version is available on the Internet at <http://books.nap.edu/html/howpeople/>

Implicit Learning and Tacit Knowledge: An Essay on the Cognitive Unconscious, Arthur Reber, Oxford University Press, 1993.

Implicit learning is the acquisition of knowledge without a conscious attempt to learn and without the learner being explicitly aware of what was learned. This book is an important addition to the information in ***How People Learn***, which fails to mention implicit learning.. Difficult reading and hard but not impossible to find, the information presented needs to be better know by educators.

Educational Leadership, volume 56, No. 3, November, 1998.

An issue of the ASCD journal on the theme “How the Brain Learns,” it contains a wide variety of articles for educators on the topic. See also the March 1997 issue with the theme “How Children Learn.” Some articles from both issues can be read online at www.ascd.org/frameedlead.html

Learning and Memory: The Brain in Action, Marilee Sprenger, ASCD Books, 1999.

Written by a middle school teacher for teachers, it synthesizes the research on memory, in layman’s terms, then offers suggestions for how to teach and assess that take advantage of the research. Practical strategies. A chapter can be read online at www.ascd.org/framebooks.html .

Creating Learning Experiences: The Role of Instructional Theory and Research, Bruce Joyce and Emily Calhoun, ASCD Books, 1996.

A monograph that briefly (81 pages) presents several models of research based instruction, with classroom examples. Go to www.ascd.org/framebooks.html to read a sample chapter.

Visual Tools for Constructing Knowledge, David Hyerle, ASCD Books, 1996.

Visual aides (webs, organizers, process maps, time lines, flow charts) can help students to organize information, to “see” connections, and to communicate their learning. Hyerle discusses the use of these visual tools in the context of how the mind works. He provides numerous classroom examples and concludes with information about computer software that can be used for mapping and organizing information. There is a chapter you can read online at www.ascd.org/framebooks.html .

I See What You Mean: Children at Work With Visual Information, Steve Moline, Stenhouse, 1995.

Suggests strategies that require students to communicate graphically and provides lots of actual student work as examples. It is especially useful for students who struggle to communicate their learning in writing.

Brain.Org

A website maintained by two secondary school teachers with extensive knowledge of brain research, it offers practical classroom applications at www.brains.org/ .

New Horizons.Org

Interesting website based on the concept of a building with each floor representing a different educational topic. There are over 100 articles on subjects as diverse as “Technology and Learning,” “Adolescents,” “ADD/ADHD,” and “Restructuring Education”. There is also a free online quarterly journal. Recent issues dealt with “The Future of Education,” “Teaching through Storytelling,” and “Educational Change.” It is all available at

BrainConnection.Com

A website for educators that carries regular updates on relevant brain research information. Be aware it is maintained by a commercial company, Scientific Learning, the originators of the Fast ForWord program. www.brainconnection.com. There is an excellent discussion of ADD/ADHD.

On Learning Disabilities and Disorders:

“Attention-Deficit Hyperactivity Disorder”, Russell Barkley, *Scientific American*, September, 1998.

Barkley is the leading researcher in the ADD/ADHD field. The article presents his explanation of the neurological basis of the disorder. He contends that ADHD is a loss of behavioral inhibition in the executive function area of the brain and is most likely polygenic in nature. The education community’s focus on the attention-deficit is understandable but misguided. See also his book, *Taking Charge of ADHD* (Guilford Press, 1995).

Beyond Ritalin: Facts About Medication and Other Strategies for Helping Children, Adolescents, and Adults with Attention Deficit Disorders, Stephen Garber, Marianne Daniels Garber and Robyn Freedman Spizman, HarperCollins, 1996.

A person with ADHD described his mind as being like a television with an out of control remote, endlessly changing channels. This is an excellent overview by experts in the field. They discuss appropriate diagnosis, what medication can and cannot do, the role of behavior therapy, and adult ADHD issues.

“Dyslexia”, Sally Shaywitz, *Scientific American*, November, 1996.

Shaywitz is a leading dyslexia researcher. She explains that it is a defect in language processing in the brain, not in the visual system. Dyslexics generally have strong conceptualization and comprehension skills but are tripped up by a breakdown in their brain’s phonological processing and a consequent inability to decode words. Many dyslexics learn to compensate but they never become fluent or automatic readers. Dyslexia runs in families and increasingly the evidence points to a genetic origin.

“The Early Origins of Autism”, Patricia Rodier, *Scientific American*, February, 2000.

Describes the research that resulted in the discovery that autism is linked to mutations in a gene that regulates brain stem development but that environmental factors during gestation seem to play a role as well. See also *Thinking in Pictures: And Other Reports from My Life With Autism*, Temple Grandin (Vintage Press, 1996).

www.dana.org/brainweb/

Maintained by a non-profit foundation, it has excellent information about brain disorders, including autism, Tourette’s Syndrome, and learning disabilities.

On the Brain and Emotions:

Descartes' Error: Emotion, Reason, and the Human Brain, Antonio Damasio, Avon Books, 1994.

Damasio is a neuroscientist with an engaging writing style whose research suggests that behaving rationally, exercising good judgment, and making good decisions are dependent on emotions and feelings. Being rational is, fundamentally, based on being emotional.

The Emotional Brain: The Mysterious Underpinnings of Emotional Life, Joseph LeDoux, Simon and Shuster, 1996.

LeDoux was the neuroscientist who did much of the original research upon which Daniel Goleman based his best selling book, *Emotional Intelligence* (Bantam, 1995). He finds emotions to be hard wired, because they are much older, and far more powerful than the logical, reasoning areas of the brain.

Molecules of Emotion: Why You Feel the Way You Feel, Candace Pert, Scribner, 1997.

Both an autobiography of one of the first female neuroscientists and a description of her groundbreaking research into the biochemistry of emotion. Viewed from the perspective of the chemical messengers that circulate through the body and brain, we are what we feel, the body-brain is a single unitary organism, and “gut” feelings are real.

Promoting Social and Emotional Learning: Guidelines for Educators, Maurice Elias, et. al., ASCD Books, 1997

How to develop, implement, and evaluate programs that help students work cooperatively, learn social relationship skills, deal with conflict, and self-monitor and self-regulate emotions. A chapter can be read online at www.ascd.org/framebooks.html . See also the May, 1997 issue of *Educational Leadership* with the theme “Social and Emotional Learning”. Selected articles can be read at www.ascd.org/frameedlead.html .

“The Moral Development of Children ,” William Damon, *Scientific American*, August 1999.

More psychology than brain science. The ability to generate moral emotions such as empathy, shame, guilt, and indignation appear to be inherited and develop in children as their brains develop. What triggers these emotions depends on the value system of their culture. A child growing up in Kosovo or the Sudan will likely develop a different moral code than a child growing up in a secure, comfortable environment in a post-modern society.

On Brain Development and Issues of the Childhood Brain:

Magic Trees of the Mind: How to Nurture Your Child's Intelligence, Creativity, and Healthy Emotions from Birth Through Adolescence, Marian Diamond and Janet Hopson, Plume, 1999.

Explains the stages of brain development, what is normal and abnormal, and how to provide an enriched environment for a growing child. Easy to read. Good for parents, teachers and anyone who works with children. Contains a long list of age appropriate games, toys, and activities.

The Growth of the Mind And the Endangered Origins of Intelligence, Stanley Greenspan,

Addison-Wesley, 1997.

We learn through our emotions and we each learn slightly differently. That is, inborn differences in our sensory makeup mean that the same experience produces different emotional effects in each of us. Greenspan's contention that children who grow up without an emotionally secure bond with an adult are in danger of limited intellectual development is a warning for our entire society.

Stopping Hyperactivity: A New Solution, Nancy O'Dell and Patricia Cook, Avery Publishing Group, 1997.

Suggests that one root cause of hyperactivity is not enough creeping and crawling in infancy, which is required to inhibit innate survival reflexes in the brain once they are no longer needed. These reflexes, once inhibited, free space for other purposes but when they remain into later childhood interfere with learning. The authors propose an intervention for five and six year olds to inhibit the reflex.

Ghosts from the Nursery: Tracing the Roots of Violence, Robin Karr-Morse and Meredith Wiley, Atlantic Monthly Press, 1997.

A disturbing book, using evidence from recent brain research, that links violent behavior in later life to neglect, abuse, or just exposure to violence in the first two years of life. Infancy is when trust, empathy, conscience, and lifelong learning -or a predisposition to violence- are hardwired into the brain. For further information on the roots of violence see ***Lost Boys: Understanding Why Our Sons Turn Violent and How We Can Save Them*** by James Garbarino (The Free Press, 1999) and ***Why They Kill*** by Richard Rhodes (Knopf, 1999). Online see also www.elinewberger.com.

What Infants Know: The New Cognitive Science of Early Development, Jacques Mehler and Emmanuel Dupoux, Blackwell, 1994.

Describes experiments with newborns that establish their competence, at birth, to cope with complex situations, discriminate things, and attend to language. Humans appear to be "pre-wired" to learn.

Right From Birth: Building Your Child's Foundation for Life, Birth to 18 Months, Craig Ramey and Sharon Ramey, Goddard Press, 1999.

Written by two child development researchers as a practical resource for new parents. It explains how parents can provide lifelong developmental benefits for their children. Craig Ramey's report on the benefits of early intervention with "at-risk" children (The Abecedarian Project) can be found at www.circ.uab.edu/.

What's Going on in There?: How the Brain and Mind Develop in the First Five Years of Life, Lise Eliot, Bantam, 1999.

The Scientist in the Crib: Minds, Brains and How Children Learn, Alison Gopnik, Andrew Meltzoff, and Patricia Kuhl, William Morrow Publishers, 1999.

The Youngest Minds: Parenting and Genes in the Development of Intellect and Emotion, Richard Barnet and Ann Barnet, Simon & Shuster, 1998.

Three books on brain development in young children, all based on the latest research, all addressed to parents and early childhood educators and anyone interested in brain development. ***The Scientist in the Crib*** delves the most into the learning aspects of the brain.

Your Child's Growing Mind: A Practical Guide to Brain Development and Learning

From Birth to Adolescence, Jane Healy, Doubleday, 1994.

An easy to read introduction to brain development through the teenage years with many good ideas for parents and teachers.

Endangered Minds: Why Children Don't Think and What We Can Do About It, Jane Healy, Touchstone, 1990

Brains are shaped by experience. Healy examines the impact of television, family breakdown, food additives, and other societal changes on the brains of today's children.

Informative Websites:

www.iamyourchild.org

Early childhood development information.

www.naeyc.org

Home page of the preeminent early childhood educators association.

Books on the brain for kids:

Look Inside Your Brain, Heather Alexander, Grosset & Dunlap, 1998.

An illustrated "Poke and Look" book for children ages 5 and up on how the brain works. Good books for kids age 9 to 12 (and all us adults who just want the simple version), all written by Steve Parker, are ***Brain Surgery for Beginners*** (The Millbrook Press, 1993) illustrated by David West, and ***The Brain and Nervous System*** (Steck Vaughn, 1997) and ***Look at Your Body: Brain and Nerves*** (Copper Beech Books, 1998), illustrated by Ian Thompson.

Additional Interesting Web Sites on the Brain:

www.musica.uci.edu

Maintained by a graduate school of neuroscience, it provides interesting, often educationally useful information about music and the brain..

www.scilearn.com

Home page of Scientific Learning Corporation, developers of the Fast ForWord program which has been shown to be effective with students with auditory processing disorders.

www.circ.uab.edu/

Craig Ramey's report on his early intervention, Abecedarian Project. Click the "research" link.

[Http://thalamus.wustl.edu/course/](http://thalamus.wustl.edu/course/)

A neuroscience tutorial maintained by a university school of medicine.

www.hhmi.org/senses/

A page from the Howard Hughes Medical Institute website, this one is on “Making Sense of the Senses: Seeing, Hearing, and Smelling the World”.

<http://users.sgi.net/~cokids/teacher10.html/>

A links page to many brain sites.

<http://faculty.washington.edu/chudler/interr.html>

Dozens of links, many relevant for children.

www.neuroguide.com

Links to neuroscience resources on the Internet. More technical than the previous links pages

<http://mind.phil.VT.edu/www/mind.html>

A college professor's site on brain science with lots of links.

www.mathmatters.net/

Materials for handling math anxiety with links to many other sites.

www.thebrainstore.com

Online catalogue of books and other resources on the brain, teaching, and learning.

www.dana.org

The Charles A. Dana Foundation maintains this site which offers accessible information on brain disorders and diseases. The foundation funds brain research and also publishes several free periodicals on brain research written for lay people. Two of them are ***Brain Work: The Neuroscience Newsletter***, a bimonthly update on recent issues and discoveries in brain science, and ***Brain-Body Health***, a quarterly dedicated to information on the emerging science of brain-body networks. You can request to be added to the mailing list for either or both by email (rtalley@dana.org) or fax (202-737-9204).

Interesting Resources on Related Subjects:

Sizzle and Substance: Presenting With the Brain in Mind, Eric Jensen, The Brain Store, 1998.

A one stop shop for anyone in the training and presentation field. Jensen has been a world class trainer for twenty years and is the leading translator of brain research for educators through his many books and his six day summer workshops. Here he makes his expertise about both training and the brain available in one place.

Extraordinary People: Understanding “Idiot Savants,” Darold Treffert, Harper & Row, 1989.

One of the great mysteries of the brain, Savant Syndrome, endows extremely low functioning people with one spectacular “island” of extraordinary ability, usually in the areas of music, mathematics or memory. It may be a compensatory mechanism for prenatal damage to the left hemisphere of the brain. Treffert profiles savants through history and examines the theories of how they got that way.

Living With Your Genes: Why They Matter More Than You Think, Dean Hamer and Pete Copeland, Doubleday, 1998.

Explains the latest research in genetics, molecular biology, and psychology and what it tells us about human behavior and personality. Deals with the interplay of environment and our genetic predispositions and preferences. Discusses thrill seeking, anxiety, aggression, addiction, sex, intelligence, eating habits, and aging. About half of all genes regulate some aspect of brain function.

Shadow Syndromes: The Mild Forms of Major Mental Disorders That Sabotage Us, John Ratey and Catherine Johnson, Bantam, 1997

Ratey contends that significant numbers of people suffer from mild forms of ADD, depression, obsessive-compulsive disorder and other behavior disorders that don't fit a clinical diagnosis but still negatively affect their lives. He offers suggestions for how to compensate.

Searching for Memory: The Brain, the Mind, and the Past. Daniel Schacter, Basic Books, 1996.

A synthesis of what is known about memory by one of the leading researchers in the field. It makes us aware of how much we are our memories and how fragile and imperfect those memories are.

The Hand: How Its Use Shapes the Brain, Language and Human Culture. Frank Wilson, Pantheon, 1998.

Based on research in anthropology, neuroscience, linguistics, and psychology, the book explains how from our earliest grasping as infants our hands shape the world around us as they guide us through it, speculates that human language may be rooted in hand gestures, not speech, and demonstrates how “hands on” really does deeply influence learning.

Why Michael Couldn't Hit: and Other Tales of the Neurology of Sports. Harold Klawans, Avon, 1998.

Michael Jordan was possibly the greatest basketball player of all time, yet when he tried to play Double A minor league baseball his career batting average was a dismal .202. Why? Because it was too late for his 30 year old brain to make the neurological adjustments necessary to see and react to a pitched ball. Klawans also discusses Muhammad Ali's Parkinson-like disease, Lou Gehrig's ALS, and the neurological advantages and disadvantages of Ben Hogan, Roger Bannister and Babe Didrikson Zaharias, among others.

Friday's Footprint: How Society Shapes the Mind, Leslie Brothers, Oxford University Press, 1997.

Using research from neuroscience and sociology, Brothers shows how brains have evolved specialized capacities for exchanging information with other brains. Brains are designed to network with other brains not to operate in isolation.

“The Tarzan Syndrome”, James Balog and “Tarzan's Little Brain”, Sarah Richardson, ***Discover***, November, 1996.

Where does our self awareness come from and why, except for a few higher primates, are no other brains self aware? The first article hypothesizes that it has something to do with orangutans clambering through the trees. The second article describes research on the cerebellum, the “little brain” at the back of our big brain, and the indications that it has an important role in cognition.

“Special Issue: The Science of Creativity”, ***Discover***, October, 1996.

Articles on evolution's creativity, brains and music, madness and creative genius, "accidental" inventions, and whether or not computers can be creative.

"Stress and Your Shrinking Brain", Robert Sapolsky, *Discover*, March, 1999.

One of the leading researchers on stress and the brain explains why we have the stress response and why too much stress, as in PTSD, can physically damage the brain. Sapolsky is an enjoyable writer who makes complex information easy to understand. See his book, *Why Zebras Don't Get Ulcers: An Updated Guide to Stress, Stress-Related Diseases, and Coping* (W.H. Freeman, 1998).

"A Head for Numbers", Robert Kunzig, *Discover*, July 1997.

We are born with a sense for small numbers and the ability to orient them on a number line. This sense is located in a small structure in the left hemisphere of the brain. There seems to be a quantitative intuition embodied in the number line that helps us learn subtraction and division. Multiplication and addition, on the other hand, must be learned, for the most part, by rote. See also Stanislas Dehaene's *The Number Sense* (Oxford University Press, 1997).

"In Search of...Brain Based Learning", John Bruer, *Phi Delta Kappan*, May, 1999.

Bruer is the best known critic of using brain research to improve teaching and learning. If you are interested, this is a concise summary of his argument.

"The Consequences of Insufficient Sleep for Adolescents: Links Between Sleep and Emotional Regulation", Ronald Dahl, *Phi Delta Kappan*, January, 1999.

Sleep is essential for survival. It is involved in memory storage for one thing. Sleep deprivation exacerbates ADHD symptoms and is linked to depression. Adolescents typically experience delayed sleep phase syndrome, staying up late and desiring to sleep late which conflicts with early start times in most high schools. All in all, not a pretty picture.

Resources About The Brain for Non-Scientists:

Inside the Brain: Revolutionary Discoveries of How the Mind Works, Ronald Kotulak, Andrews and McMeel, 1996

An expanded version of a Pulitzer Prize winning newspaper series, it is an easy to read introduction to recent brain research. Kotulak emphasizes the effects of drugs and violence on the brain.

The Modular Brain: How New Discoveries in Neuroscience are Answering Age Old Questions About Memory, Free Will, Consciousness, and Personal Identity, Richard Restak, Touchstone, 1994.

Richard Restak is a neuroscientist who writes short popularizations of brain research for the lay audience. See also *Receptors* (Bantam, 1994), about the effects of drugs, legal and otherwise, on the brain.

The Human Brain: A Guided Tour, Susan Greenfield., Basic Books, 1997.

A description of the biology of the brain from the cellular level on up by a professor who writes a science

column.

Mapping the Mind, Rita Carter, University of California Press, 1998.

A readable account, with many illustrations, of what has been discovered about brain structure and function and how it was discovered.

“How the Brain Creates the Mind,” Antonio Damasio, **Scientific American**, December, 1999.

Damasio, a distinguished neuroscientist and a smooth writer, attempts to explain his theory of the origin of consciousness for an educated lay audience. He elaborates in his book ***The Feeling of What Happens: Body and Emotion in the Making of Consciousness*** (Harcourt Brace, 1999).

Magazines:

Popular magazines, like Time and Newsweek, have discovered that the public is interested in brain research and have employed excellent science writers to explain it, often in cover stories. They are a good source of accurate, relatively easy to understand information about brain research. (The Scientific American articles are moderately technical but you can get the main idea and the excellent illustrations and pictures often tell the story all by themselves.) Below are some suggestions beyond those listed under specific categories. Most of the cited magazines maintain web sites with online access to back issues. For example, at www.time.com/time/ you can click on “magazine archive” and access articles from Time Magazine back to 1994. Going to www.discover.com/ will allow you to read articles from the current issue of Discover Magazine and issues going back two years. They also provide links to other Internet sites with relevant information. There is also a feature called “Brain Works” that provides graphic demonstrations not possible on a two dimension magazine page. At www.sciam.com, the website for Scientific American Magazine, you can access two or three feature articles from each issue going back to 1996. A nice touch is the links incorporated into the articles that will take you to additional information about items cited in the text. The Newsweek site is at www.msnbc.com/news/NW-front_Front.asp but it is not very good and has no back issue archive. The site for New Scientist Magazine, on the other hand, is very good. Go to www.newscientist.com and you will find selected articles from the past year. They are enhanced with links. All the articles from the past ten years are available to subscribers and anyone can get a seven day free trial, if you find a few titles you can’t live without.

“Your Child’s Brain” Sharon Begley, **Newsweek**, February 19, 1996.

“Dyslexia and the New Science of Reading”, Barbara Kantrowitz and Anne Underwood, **Newsweek**, November 22, 1999.

“Rewiring Your Gray Matter”, Sharon Begley, *Newsweek*, January 1, 2000.

“Glimpses of the Mind: What is consciousness? Memory? Emotion? Science unravels the best-kept secrets of the human brain”, Michael Lemonick, *Time*, July 17, 1995.

“The Evolution of Despair, Robert Wright, *Time*, August 28, 1995

“Special Report: How A Child’s Brain Develops”, Madeleine Nash, *Time*, February 3, 1997.

“Addicted”, Madeleine Nash, *Time*, May 5, 1997.

“Lots of Action in the Memory Game”, George Johnson, *Time*, June 12, 2000

“Quiet Miracles of the Brain”, Joel Swerdlow, *National Geographic*, June, 1995.

“The Puzzle of Conscious Experience”, David Chalmers, *Scientific American* December, 1995.

“New Nerve Cells for the Adult Brain”, Gerd Kempermann and Fred Gage, *Scientific American*, May, 1999.

“Cell Communication: The Inside Story”, John Scott and Tony Pawson, *Scientific American*, June, 2000.

On the Evolutionary Development of the Brain:

Nature’s Mind: The Biological Roots of Thinking, Emotions, Sexuality, Language and Intelligence, Michael Gazzaniga, Basic Books, 1992.

Although dated with respect to the brain research, Gazzaniga addresses the evolutionary nature of the brain and how it appears to be pre-wired for many of its functions.

Braindance: New Discoveries About Human Brain Evolution, Dean Falk, Henry Holt, 1992.

How human brains got to be so big relative to our body size.

The Prehistory of the Mind: The Cognitive Origins of Art and Science, Steven Mithen, Thames and Hudson, 1996.

An archaeologist speculates on how the brain evolved culture and technology.

The Runaway Brain: The Evolution of Human Uniqueness, Christopher Wills, Basic Books, 1993.

How the human brain got to be so different from those of other animals, bringing together discoveries in

paleontology, genetics, and neurobiology.

The Evolution of Consciousness: The Origins of the Way We Think, Robert Ornstein, Touchstone, 1992.

A fascinating explanation of how we got to be the way we are.

The Origin of Consciousness in the Breakdown of the Bicameral Mind, Julian Jaynes, Houghton Mifflin, 1976. [There are a number of reprint editions available.]

This is really more psychology than neurology but any way you look at it this is a mind-bending book.

Jaynes' thesis is that consciousness is not a product of millions of years of evolution but is a learned process that began about 3,000 years ago and is still developing. Unproveable but incredibly thought provoking, you can enjoy it, and be challenged by it, even if you don't accept the thesis. He intended to produce a follow up volume to be called *The Consequences of Consciousness*, but died without publishing it.