Subtypes of Social Difficulties

1. **AD/HD typically associated with Oppositional Defiant Disorder or Conduct Disorder**
2. **Autism Spectrum Disorder**
3. **AD/HD only**

Voeller, K.S. (1994). Techniques for Measuring Social Competence in Children. In R.G. Lyon (Ed.), Frames of Reference for the Assessment of Learning Disabilities: New Views on Measurement Issues. Baltimore, MD: Paul H. Brookes, pp. 523-554.

DSM-5

(Website: 24-31)

- **Attention-Deficit/Hyperactivity Disorder**
- **Specify based on current presentation—**
  - **314.01 (F90.2) Combined Presentation**
  - **314.00 (F90.0) Predominately Inattentive Presentation**
  - **314.01 (F90.1) Predominately Hyperactive/Impulsive Presentation**

DSM-5

- Need to have symptoms prior to age 12.
- 18 Symptoms of AD/HD child and adult equivalents
- 9 symptoms of Inattention: Need 6 for significance (may need only 5 if over age 17)
- 9 symptoms of Hyperactivity/Impulsivity: Need 6 for significance (may need only 5 if over age 17)

DSM-5

- **Other Specified Attention-Deficit/Hyperactivity Disorder 314.01 (F90.8):**
  - **This,"…category is used in situations in which the clinician chooses to communicate the specific reason the presentation does not meet criteria for…" AD/HD (p. 65-66).**

DSM-5

- **Unspecified Attention-Deficit/Hyperactivity Disorder (314.01) (F90.9):**
  - **This,"…category is used in situations in which the clinician *chooses* not to specify the reason that the criteria are not met for…" AD/HD (p. 66).**
  - **This may the best place to place AD/HD, Inattentive Presentation (restrictive) (AKA) Sluggish Cognitive Tempo (SCT) (AKA) Crichton Syndrome (AKA) Concentration Deficit Disorder (CDD)**

DSM-5

- **Severity will be specified:**
  - **Mild: Few if any symptoms over cutoff; minor impairments in occupational & social functioning**
  - **Moderate: Impairment between "Mild" and "Severe" presentation**
  - **Severe: Many symptoms in excess of cutoff; marked impairment socially and occupationally**

Resources

- **Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 59-66.**
- **Author (2010). Attention-Deficit/Hyperactivity Disorder. Washington, DC: American Psychiatric Association: http://www.dsm5.org/ProposedRevision/Pages/proposedrevision.aspx?rid=383.**
- **Barkley, R. A. (November 9, 2012). The Other Attention Disorder: Sluggish Cognitive Tempo (ADD/SCT) Vs. ADHD– Impairment and Management. Paper presented at the 24th Annual CHADD International Conference on ADHD, Burlingame, CA, November 8 – 10, 2012.**
- **Barkley, R.A. (November, 2013). A plea to Rename Sluggish Cognitive Tempo (SCT) as Concentration Deficit Disorder. The ADHD Report, 21(7), 1-4.**

DSM-5 Digression (WEBSITE: 32-35)

- **Types of High Functioning Autism, Autism, Autism Spectrum Disorder, Asperger's Disorder, PDD, PDD-NOS:**

1. Autism Spectrum Disorder

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 50-59.

Author (2010). Asperger's Disorder. Washington, DC: American Psychiatric Association; www.dsm5.org/Proposed/Revisions/Pages/proposedrevision.apx?rid=97#.

Author (2010). Autistic Disorder. Washington, DC: American Psychiatric Association; www.dsm5.org/Proposed/Revisions/Pages/proposedresisions.apsx?rid=94.

Autism Spectrum Disorder

Note: Individuals with well established DSM-IV diagnosis of autistic disorder, Asperger's disorder, or pervasive developmental disorder not otherwise specified should be given the diagnosis of autism spectrum disorder. Individuals who have marked deficits in social communication, but whose symptoms do not otherwise meet criteria for autism spectrum disorder, should be evaluated for social (pragmatic) disorder.

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 51.

Autism Spectrum Disorder

- **Specifiers**
  - **With or without accompanying intellectual impairment**
  - **With or without accompanying language impairment**
  - **With catatonia**
  - **Associated with a known medical or genetic condition or environmental factor**
  - **Associated with another neurodevelopmental, mental, or behavioral disorder**

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 51-59.

Autism Spectrum Disorder

- **Three Levels of Severity:**
  - **Level 3, Requiring very substantial support**
  - **Level 2, Requiring Substantial Support**
  - **Level 1, Requiring Support**
- **Not all those with ASD have intellectual disability.**
- **Prenatal exposure to valproate acid may cause ASD**

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 51-59.

Social Learning Disabilities

- LD children are less socially competent and less well liked.
- Typical social cognitive problems:
  - Interpretation and perception of faces, tone of voice, gesture and body language
  - Poor at social inference and poor social judgment

Wren, C. (2000). Hanging By A Twig. New York, NY: Norton.

Semrud-Clikeman, M. (2007). Social Competence in Children. New York, NY: Springer, pp. 76-77.

DSM-5 Digression (WEBSITE: 36-43)

- **Specific Learning Disorder**
  - **With impairment in reading:**
    - **Word reading accuracy**
    - **Reading rate or fluency**
    - **Reading comprehension**

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 66-74.

Author (July, 2012). An Insightful Q&A with Dr. Larry Silver: An Inside Look At DSM-5. Pittsburg, PA: Learning Disabilities Association of America. From Website: http://www.ldanatl.org/legislative/pubs/120820_DSM-5_Q-A_with-Larry-Silver.pdf.

Colker, R., Shaywitz, S., Shaywitz, B., Simon, J.A., (No Date) Comments on Proposed DSM-5 Criteria for Specific Learning Disorder from a Legal and Medical/Scientific Perspective. Yale Center for Dyslexia and Creativity. From Website: http://dyslexia.yale.edu/CommentsDSM5ColkerShaywitzSimon.pdf.

Grohol, J.M. (December 5, 2012). Final DSM Approved by American Psychiatric Association. World of Psychology: PsychCenteral. From website: http://psychcentral.com/blog/archives/2012/12/02/final-dsm-5-approved-by-american-psychiatric-association/.

DSM-5 Specific Learning Disorder with Impairment In Reading:

Note: *Dyslexia* is an alternative term used to refer to a pattern of learning difficulties characterized by problems with accurate or fluent word recognition, poor decoding, and poor spelling abilities. If dyslexia is used to specify this particular pattern of difficulties, it is also important to specify any additional difficulties that are present, such as difficulties with reading comprehension or math reasoning.

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 67.

DSM-5 Specific Learning Disorder with Impairment In Written Expression

315.2 (F81.81) Specific Learning Disorder

With impairment in written expression:

- **Spelling accuracy**
- **Grammar and punctuation accuracy**
- **Clarity or organization of written expression**

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 66-74.

DSM-5 Specific Learning Disorder with Impairment In Mathematics

315.1 (F81.2) Specific Learning Disorder With impairment in mathematics:

- **Number sense**
- **Memorization of arithmetic facts**
- **Accurate or fluent calculation**
- **Accurate math reasoning**

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 66-74.

DSM-5 Specific Learning Disorder With Impairment In Mathematics

Note: *Dyscalculia* is an alternative term used to refer to a pattern of difficulties characterized by problems processing numerical information, learning arithmetic facts, and performing accurate of fluent calculations. If dyscalculia is used to specify this particular pattern of mathematic difficulties, it is important also to specify any additional difficulties that are present, such as difficulties with math reasoning or word reasoning accuracy.

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 66-74.

DSM-5 Specific Learning Disorder Information

- **Specific Learning Disorder can be Mild, Moderate, or Severe in impairment.**
- **Specific learning disorder may also occur in individuals identified as intellectually "gifted." (p. 69).**
- **Those with an I.Q lower than 65 would not be considered as having Specific Learning Disorder.**

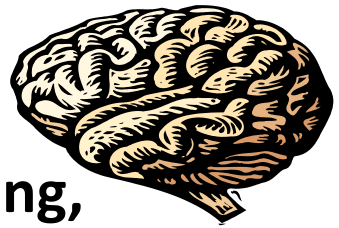
Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 66-74.

Reference

Author (May 18, 2013). Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Washington, DC: American Psychiatric Association, 66-74.

Brain Areas Related to Social Interaction

Schultz and Klin (in press) indicated the following brain areas control the following social behaviors:



***Frontal lobe*: Theory of mind and social perception**

***Hypothalamus*: Maternal behavior**

***Amygdala*: Arousal, emotional learning, social orienting, recognition of emotional significance**

***Fusiform gyrus*: Face perception**

***Temporal lobe*: Interpretation of biological movement, recognition of facial expressions**

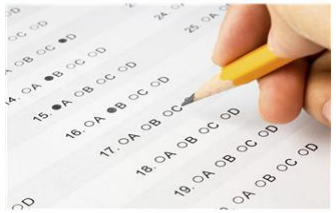
Schultz, R.T. & Klin, A. (in press). Social Systems of the Brain: Evidence From Autism and Related Disorders. Philosophical Transitions of the Royal Society, Series B. (taken from: Ozonoff, S., Dawson, G. and McPartland, J. 2002. A Parent's Guide to Asperger Syndrome & High-Functioning Autism. New York, NY: Guilford, p. 58)

Brain Areas Related to Social Interaction

- **Voeller believed all the above mentioned systems are located in their own specific brain areas.**
- **Impairment in one area does not necessarily mean impairment in other areas.**

Voeller, K.S. (1995). Clinical Neurological Aspects of the Right-Hemisphere Deficit Syndrome. Journal of Child Neurology, 10 (Supplement Number 1), pp. S16-S22.

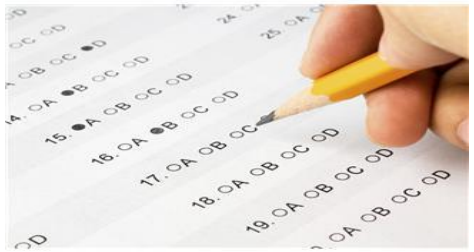
Emotional Intelligence



- **Lane wrote, "Emotional Intelligence may be broadly defined as the ability to use emotional information in a constructive and adaptive manner." (p. 2)**

Lane, R.L. (2000). Neural Correlates of Conscious Emotional Experience. In R. Lane, L. Nadel, G. Ahern, J. Allen, A. Kazniak, S. Rapcsak and G. Schwartz (Eds.), Cognitive Neuroscience of Emotion. New York, NY: Oxford University Press, pp. 345-370.

Emotional Intelligence



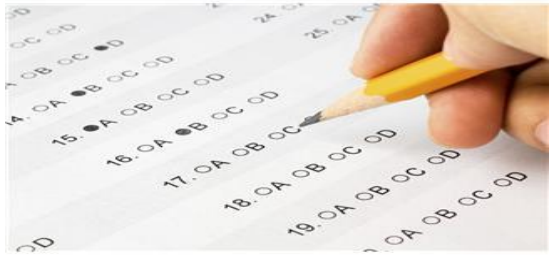
- **Daniel Goleman stated that emotional intelligence is intricately imbedded in the human neuroanatomy.**

Goleman, D. (1997). Emotional Intelligence: Why It Can Matter More Than IQ. New York, NY: Bantam.

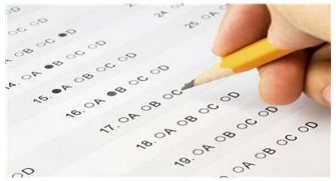
Emotional Intelligence

- **A prerequisite for empathy is an awareness of one's own emotions.**

Lane, R.L. (2000). Neural Correlates of Conscious Emotional Experience. In R. L. Lane, L. Nadel, G. Ahern, J. Allen, A. Kazniak, S. Rapcsak and G. Schwartz (Eds.), Cognitive Neuroscience of Emotion. New York, NY: Oxford University Press, pp. 345-370.



Emotional Intelligence



- **AD/HD Children live a lifetime of social rejection.**
- **Around 80% of Combined Type ADHD children are socially rejected because of poor social skills by 2nd grade.**
- **AD/HD children often are not aware of their poor social skills and blame others for their problems.**

Barkley, R.A. (2008). Advances in ADHD: Theory, Diagnosis and Management. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; www.jkseminars.com.

Simon Baron-Cohen and Emotional Intelligence (WEBSITE: 44-47)

- Autism Spectrum Disorder may be an extreme form of the biological male personality.
- Males are into ***Systematizing (S)***, or understanding things.
- Females are into ***Empathizing (E)***, or understanding people.

- Those with Autism (mostly males) are weak in or lack ***Empathizing***, but are strong in ***Systematizing***.
- The ***E-S Spectrum***

Baron-Cohen, S. (2003). The Essential Difference. New York, NY: Perseus.

Dyslexia and Gender (Website: 48-50)

- **Sally Shaywitz (1996) reported:**
  - **Women's brains appear to have bilateral phonological processing.**
  - **This may explain why women tend to have fewer language deficits after left brain strokes.**
  - **It may also explain why more women than men compensate for Specific Learning Disorder with impairment in reading: dyslexia.**

Shaywitz, S.E. (1996). Dyslexia. Scientific American, 275 (5), pp. 98-104.

AD/HD and Gender

- ***AD/HD girls suffer socially more than AD/HD boys.***

Quinn, P. O. and Nadeau, K.G. (2002). Gender Issues and AD/HD. Silver Spring, MD: Advantage.

Goldstein, S. and Gordon, M. (August, 2003). Gender Issues and ADHD: Sorting Fact From Fiction. ADHD Report, 11 (4), 7-11, 16.

Langer, H. (2002). Role Expectations. In P.O. Quinn and K.G. Nadeau (Eds.), Gender Issues and AD/HD. Silver Spring, MD: Advantage, pp. 70-80.

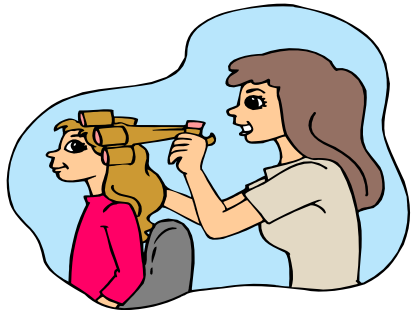
Asperger's and Gender

- **Girls and women with Autism Spectrum Disorder suffer more socially that boys and men with Autism Spectrum Disorder.**

Attwood, T. (2007). The Complete Guide for Asperger's Disorder. Philadelphia, PA: Jessica Kingsley.

Hully, C. and Larmar, S.A. (2006). Asperger Syndrome in Adolescent Females. International Journal of Learning. 13 (3), p. 1-6. From Website: http://www98.griffith.edu.au/dspace/bitstream/10072/14167/1/40458.pdf.

Compassion



- **Three things make humans behaviorally different from all other species:**
  - **Our capacity to delay our response to our environment (Bronowski, 1977).**
  - **Our capacity for compassion (Leakey, 1995).**
  - **Our capacity for long-term compassion (Grandin, 1995).**

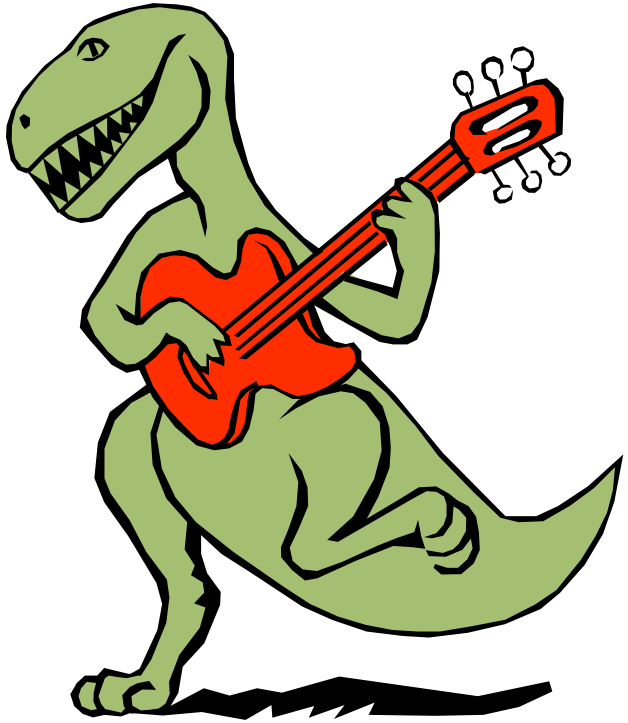
Bronowski, J. (1977). Human and Animal Languages: In a Sense of Future. Cambridge, MA: MIT Press. pp. 104-131.

Leakey, R. (1995). Speech given to the National Press Club, Washington, DC, Played on National Public Radio.

Grandin, T. (1995). Thinking In Pictures: And Other Reports From My Life With Autism. New York, NY: Vintage.

Kinder, Gentler, T-Rex

- **There is now evidence that some dinosaurs nested and raised offspring similar to modern birds. Hence, they had some capacity for compassion.**



Horner, J. (2000). Dinosaur Reproduction and Parenting. Annual Review of Earth and Planetary Sciences, 28, p. 19-45.

Compassion

"The findings command attention, as the bonobo is just as close to us as its sibling species, the chimpanzee. According to DNA analysis, we share over 98 percent of our genetic profile with each of these two apes…the genetic makeup of a chimpanzee or bonobo matches ours more closely than any other animal…In terms of family resemblance, only two options exist: either we are one of them or they one of us." (p. 5)

DeWaal, F. and Lanting, F. (1997). Bonobo: The Forgotten Ape. Berkley, CA: University of California Press, p. 5.

Compassion

"In the summer of 1982 Kat was newly pregnant and Washoe doted over her belly, asking about her BABY. Unfortunately, Kat suffered a miscarriage. Knowing that Washoe had lost two of her own children, Kat decided to tell her the truth. MY BABY DIED, Kat signed to her. Washoe looked down to the ground. Then she looked into Kat's eyes and signed CRY, touching her cheek just below the eye. When Kat had to leave that day, Washoe would not let her go. PLEASE, PERSON HUG, she signed." (Fouts, 1997; Edwards, 2000)

Fouts, R. (1997). Next of Kin: My Conversations with Chimpanzees. New York, NY: William Morrow.

Edwards, M. (Spring, 2000). Book Review. The Harvard Brain. From website: hcs.harvard.edu/~husn/BRAIN/vol7-spring2000/fouts.htm.

Compassion

- **Bonobo: Pan paniscus**
  - **Shares 98% of its genetic profile with humans.**
  - **They have been compared to australopithecines**
  - **“In physique, a bonobo is as different from a chimpanzee as a Concorde is from a Boeing 747.” (p. 3 of 14)**

DeWaal, F.B.M. (March 1995). Bonobo Sex and Society. Scientific American. pp. 82-88. From Website: http://primates.combonobos/bonobosexsoc.html.

Bonobo: Pan Paniscus

Compassion

The dominate male bonobo at the Great Ape Trust in Iowa, Kanzi, can communicate by using 348 symbols and knows the meaning of up to 3000 words!

Raffaele, P. (November, 2006). The Smart and Swinging Bonobo. Scientific American. 37 (6), pp. 66-75.

Bonobos & Vasopressin

"Interestingly, this same polymorphic microsatellite in the human *AVPR1A* that has been associated in autism is absent in the common chimpanzee, but present in the bonobo. Bonobos are known for high levels of psychosexual reciprocity and they appear to use sexuality to promote social reconciliation as well as social bonding within the group. Therefore, it is intriguing to consider that as in voles, variations in unstable microsatellite sequences in the promoters of the primate vasopressin receptor may contribute to species difference in expression and social behaviour, as well as to individual differences in social behaviour." (p. 2195)

Hammock, E.A.D. and Young, L.J. (December, 2006). Oxytocin, Vasopressin and Pair Bonding: Implications for Autism. Philosophical Transactions of the Royal Society of Biological Sciences, 361 (1476), pp. 2187-2198. From Website: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1764849.

Chimpanzee, Bonobos, Humans & Vasopressin

"Similar genetic variation in the human *AVPR1A* may contribute to variations in human social behavior including extremes outside the normal range of behavior and those found in autism spectrum disorders." (p. 2187)

Hammock, E.A.D. and Young, L.J. (December, 2006). Oxytocin, Vasopressin and Pair Bonding: Implications for Autism. Philosophical Transactions of the Royal Society of Biological Sciences, 361 (1476), pp. 2187-2198. From Website: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1764849

Chimpanzee, Bonobos, Humans & Vasopressin

"Our two closest primate cousins – chimpanzees and bonobos –also have different lengths of this gene, which match their social behaviors. Chimpanzees, who have the shorter gene, live in territorially based societies controlled by males who make frequent, fatal war raids on neighboring troops. Bonobos are run by female hierarchies and seal every interaction with a bit of sexual rubbing…"

Chimpanzee, Bonobos, Humans & Vasopressin

"…they are exceptionally social and have a long version of the gene. The human version of the gene is more like the bonobo gene. It would seem that those with the longer version of the gene are more socially responsive. For example, this gene is shorter in humans with autism…" (p. 74)

Brizendine, L. (2006). The Female Brain. New York, NY: Morgan Road.

Teco, The Autistic Bonobo Toddler

- **Recently the researchers at the Great Ape Trust in Iowa report that an 18 month old male bonobo toddler shows significant signs of autism spectrum disorder.**
- **Additionally recent research has demonstrated that the bonobo social brain is much more similar to that of humans than to chimpanzees.**

Teco, The Autistic Bonobo Toddler

“When Teco was 2 months old, Elikya handed the baby off to his aunt, as if asking for help. The aunt, Panbanisha, brought him to institute staff, who took on more of the responsibility for rearing Teco.

That's when they began to notice that he also showed various autism-like symptoms: lack of eye contact, strict adherence to rituals or routines, repetitive behaviors and an interest in objects rather than in social contact…”

Teco, The Bonobo Toddler

- **"…A blanket, for example, has to be arranged just so or else Teco becomes agitated, says scientific director William Fields. Teco also shows repetitive movements similar to those seen in some children with autism."**
- **"He seemed to be fascinated by parts of objects, like wheels and other things and he wasn't developing joint attention," Fields adds. "The baby was avoiding eye contact — it was like it was painful for him."**

Deweert, S. (April 15, 2011). An Ape With Autism. New York, NY: Simons Foundation, Autism Research Initiative (SFARI). From website: https://sfari.org/about-sfari/contact-us .

Alexithymia

What is Alexithymia?

1. **Tends not to have fantasies, no feelings and have sharply limited emotional vocabularies.**
2. **They have colorless dreams.**
3. **They cannot tell bodily sensations from emotions and are baffled by them.**
4. **They have great difficulty making decisions because they lack "gut feelings."**

Goleman, D. (1995). Emotional Intelligence: Why It Can Matter More Than I.Q. New York, NY: Bantam.

Alexithymia

- **"Functional imaging studies implicate medial and prefrontal cortex and posterior superior sulcus (STS)… The STS is concerned with representing the actions of others through the detection of biological motion; medial prefrontal regions are concerned with explicit representation of the states of the self. These observations suggest that the ability to mentalize has evolved from a system for representing actions."**

Frith, C.D. and Frith, U. (1999). Intersecting Minds-A Biological Basis. Science, 286, 1692-1695.

Alexithymia

Lane wrote, "Several neuroimaging studies reveal that an area of the medial prefrontal cortex very close to that identified in our attention to emotional experience study has been implicated during the performance of theory of mind tasks…these findings suggest that the neural substrates of the mental representation of one's own and other's mental states are closely related." (p. 18) Lane continued that several studies of brain injured individuals when coupled with the above appeared to indicate, *"…that successful social adaptation requires the 'dual task' ability to stay in touch with the needs of others while paying due attention to one's own needs." (p. 20)*

Lane, R. (2000). Neural Correlates of Conscious Emotional Experience. In L.R. Lane, et. al. (Eds.), Cognitive Neuroscience of Emotion. New York, NY: Oxford University Press, pp. 345-370.

Macaque Monkey

Macaques "Mirror Neurons"

Researchers discovered "mirror neurons" at the University of Parma in Italy in 1992.

Rizzolatti, G., Fogassi, L. and Gallese, V. (November, 2006). Mirrors in The Mind.

Scientific American, 296 (5), pp. 54-61.

Mirror Neurons

- Italian study of macaque monkeys in 1992
  - Known for years cells of premotor cortex fire just before movement.
  - Discovered that same cells fired in the same pattern when another primate was seen making the same movement!
  - Humans have these ***MIRROR NEURONS*** too.
  - They allow us to intuit others intentions and to feel their pain.

Lametti, D. (June 9, 2009). Mirroring Behavior. Scientific American, from website: www.scientificamerican.com/article.cfm?id=mirroring-behavior.

Mirror Neurons

"Much as circuits of neurons are believed to store specific memories within the brain, sets of mirror neurons appear to encode specific sets of actions. This property may allow an individual not only to perform basic motor procedures without thinking about them but also to comprehend those acts when they are observed, without any need for explicit reasoning about them." (p. 56)

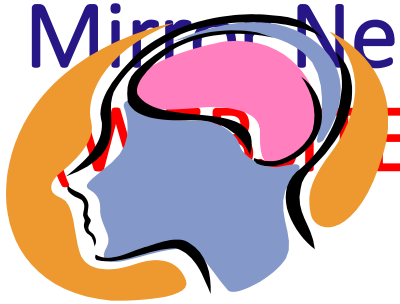
Rizzolatti, G., Fogassi, L. and Gallese, V. (November, 2006). Mirrors in The Mind. Scientific American, 296 (5), pp. 54-61.

Mirror Neurons

- **"With knowledge of these neurons, you have the basis for understanding a host of enigmatic aspects of the human mind: 'mind reading' empathy, imitation learning and even the evolution of language. Anytime you watch someone else doing something (or even starting to do something), the corresponding mirror neuron might fire in your brain, thereby allowing you to 'read' and understand another's intentions and thus develop a sophisticated *theory of other minds*." (p.2)**

Ramachandran, V.S. (3/8/05). Mirror Neurons and Imitation Learning as the Driving Force Behind "The Great Leap Forward" in Human Evolution.
www.edge.org/3rd_culture/ramachandran/ramachandran_p2.html

Mirror Neuron Neurology
(SLIDE: 51)



"This circuitry comprises the human superior temporal sulcus and the human mirror neuron system –namely, the inferior frontal cortex, which seems particularly important for coding the goal imitated action… and the rostral part of the inferior parietal lobe." (p. 158)

Goldstein, S., Naglieri, J.A., and Ozonoff, S. (2009). Assessment of Autism Spectrum Disorders. New York, NY: Guilford, p. 158.

Mirror Neurons May Help Us Generate Appropriate Social Responses

"These results suggest that a set of mirror neurons encodes the observed motor acts not only for action understanding, but to analyze such acts in terms of features that are relevant to generating appropriate behaviors."

Caggiano, V., Fogassi, L., Rizzolatti, G., Their, P., Casile, A. (April 2009). Mirror Neurons Differently Encode the Peripersonal and Extrapersonal Space of Monkeys. Science. 324 (5925), pp. 403-406; From website: www.sciencemag.org/cgi/content/abstract/324/5925/403.

Mirror Neurons & Executive Functions

"Studies show that the capacity to imitate the actions of others is now virtually an instinct at the level of neuronal functioning. The PFC (Prefrontal Cortex, sic) responds to viewing others' actions by activating the same sensory-motor regions of the brain as the acting person is using to create the behavior. The mirror-neuronal system has been linked to theory of mind and to empathy, among other human attributes related to EF (Executive Functions, sic.)" (p. 117).

Barkley, R.A. (2012). Executive Functions: What They Are, How they Work, and Why They Evolved. New York, NY: Guilford.

Mirror Neurons

How does the following relate to AD/HD?:

"If the mirror neuron system serves as a bridge in this process, then in addition to providing an understanding of other peoples intentions, it may have evolved to become an important component in the human capacity for observation-based learning and sophisticated cognitive skills." (p. 61)

Rizzolatti, G., Fogassi, L. and Gallese, V. (November, 2006). Mirrors in The Mind. Scientific American, 296 (5), pp. 54-61.

Mirror Neurons

How does this relate to ADHD?

Barkley (2008) said that those with Combined Type AD/HD and comorbid Alexithymia typically have intact mirror neurons, they just do not use their mirror neurons due to their frontal lobe difficulties.

Barkley, R.A. (2008). Advances in ADHD: Theory, Diagnosis and Management. J & K Seminars, L.L.C., 1861 Wichersham Lane, Lancaster, PA 17603; 800-801-5415; www.jkseminars.com.

Mirror Neurons and Autism

"Broken mirror neurons" *MAY* explain isolation and lack of empathy.

Those with autism spectrum disorder lack activity in many areas associated with mirror neurons.

Ramachandran, V.S. and Oberman, L.M. (November, 2006). Broken Mirrors. Scientific American, 296(5), pp. 62-69.

Mirror Neurons

I spoke to Uta Frith about using the combination of her group's research on emotional working memory and the mirror neuron research as an explanation of the behaviors of autism spectrum disorder. She said the combination of theories could not differentiate autistic behavior and antisocial behavior.

Frith, U. (November 1, 2007). Personal Communication. International Dyslexia Association 58th Annual Conference, Dallas, TX.

Mirror Neurons

However, Blair wrote after reviewing the literature, "It is suggested from this literature that empathy is not a unitary system but rather a loose collection of partially dissociable systems. In particular, three divisions can be made: cognitive empathy (or Theory of Mind), motor empathy and emotional empathy. The two main psychiatric disorders associated…

Mirror Neurons

"…with empathic dysfunction are considered: autism and psychopathy. It is argued that individuals with autism show difficulties with cognitive and motor empathy but less clear difficulties with respect to emotional empathy. In contrast, individuals with psychopathy show clear difficulties with a specific form of emotional empathy but no indications of impairment with cognitive and motor empathy." (p. 1 of 2)

Blair, R.J.R. (December, 2005). Responding to the Emotions of Others: Dissociating Forms of Empathy Through the Study of Typical and Psychiatric Populations. Consciousness and Cognition, 14 (4), pp. 698-718. From Website: www.sciencedirect.com/science?_ob=ArticleURL&_=B6WD0-4H39727-2&_user.

Zero Degrees of Positive Empathy Vs Zero Degrees of Negative Empathy (WEBSITE: 52-53)

- **What Blair wrote about empathy is essentially what Simon Baron-Cohen wrote regarding differentiating ASD and antisocial individuals in his book:**

Baron-Cohen, S. (2011). The Science of Evil: On Empathy and The Origin of Cruelty. New York, NY: Basic Books.