Beyond Social Skills: Working with Children Who Struggle with Social Interaction

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2008 ASHA CONVENTION
FRIDAY NOVEMBER 21, 2008

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Learning Outcomes

- After completing this session, participants will be able to discuss and identify factors which may influence the development of social interaction skills.
- Participants will be able to describe the relationship between each area (experience-dependent brain plasticity, executive functions, and emotional regulation/recognition) and social interaction skills.
- Participants will be able to describe and devise an intervention strategy in each area that positively impacts on social interaction skills.

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The Problem with the Current Conceptions of Social Skills

- Imply…
  - Finite group of skills
  - Intrapersonal focused (i.e., what the person needs to know or do)
  - Generally, focused on skills acquisition problems, although may also focus on skills fluency problems (i.e., using skills fluently in a situation)
  - More "product" oriented

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The Problem with the Current Conceptions of Social Skills (cont.)

- Winner, 2008

   "The concept of teaching 'social skills' misrepresents the dynamic and complex process that is at the heart of social skill production."

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Factors Which May Interfere with Social Interaction

- Neurobiology
  – Autism, ADHD, Depression, Bipolar Disorder, Panic Disorder, Oppositionality, etc.
- Experience
  – Parent's, Child's, Therapist's, Other's
  – Experience of the Adult-Child Duo
- Technology
  – iPod, video games, text messaging, etc.

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Diagnoses Related to Difficulties with Social Interactions

- Autism/Asperger
- Attention Deficit Disorder
- Pervasive Developmental Disability
- Oppositional Defiant Disorder
- Tourette's Syndrome
- Intellectual Disability
- Nonverbal Learning Disability
- Learning Disability
- Reactive Attachment Disorder
- Anxiety and Anxiety Secondary to other disorders
- Other

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Words Used to Describe Individuals Who Struggle Socially

- Clueless
- Socially Naïve
- Tactless
- Inflexible
- Friendless
- Aggressive
- Anxious
- Unmotivated
- Bully

- Matter-of-fact
- Explosive
- Manipulative
- Socially incompetent
- Out-of-synch
- Uncooperative
- Noncompliant
- Oppositional

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Some Factors Impacting Social Awareness and Facility

- Perceptual/processing issues
  - Visual Processing
  - Auditory Processing
- A tendency to get overwhelmed in stimulating environments-dysregulation/sensory integration
- Expressive/receptive language issues
- Difficulties using and understanding abstract, inferential, and figurative language
- Emotion recognition problems (difficulties interpreting vocal, facial, body motion cues)
- Processing speed issues
  - Too fast
  - Too slow

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Some Factors Impacting Social Awareness and Facility (cont.)

- Memory issues: working, episodic/ autobiographical
- Executive function issues
- Difficulty changing cognitive sets (shifting from one set of thoughts to another-inflexibility)
- Difficulty or failure to accurately perceive social cues/information
- Ego depletion and ego resilience

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An Alternative Perspective on Working with
Individuals who Struggle with Social Interaction

- Intervention may need to more dynamic, and
  address underlying challenges with both
  perception of social information and social
  thinking
- Interventions may benefit from research related
  to brain-behavior interactions, particularly in the
  areas of:
  – Experience-Dependent Brain Plasticity
  – Executive Functions
  – Emotional Recognition

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Experience-Dependent Brain Plasticity

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What is Experience-Dependent Brain Plasticity?

- "…refers to structural and functional changes
  in the brain that are brought about by training
  and experience." (Mundkur, 2005)
- Processes of neurogenesis, synaptogenesis,
  and myelination that occur in the brain and
  nervous system.

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- "Learning changes the brain." (Richard, 2001)
- "…when learning occurs in a way consistent with the laws that govern brain plasticity, the mental "machinery" of the brain can be improved so that we learn and perceive with greater precision, speed and retention." (Doidge, 2007)

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Structures in the Brain Important for Social Interaction that Can Undergo Experience-Dependent Changes

- Neurologic Structures
  - Amygdala
  - Hippocampus
  - Hypothalamus
  - Prefrontal Cortex
  - Anterior Cingulate Gyrus
- Hormones and hormonal expression
  - Oxytocin
  - Vasopressin
  - Cortisol
  - Endogenous opioids-endorphin

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Resonance System: Mirror Neurons

- "A particular class of … neurons, originally discovered in area F5 of the monkey premotor cortex, that discharge both when the [individual] does a particular action and when it observes another individual doing a similar action." (Rizzolatti & Craighero, 2004)
- May be important for imitation, action understanding, the evolution of gestural and verbal language, empathic attunement, and theory of mind.

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Factors Impacting on Experience-Dependent Brain Plasticity

- National Scientific Council on the Developing Child, 2007
  - Genetics
  - Environment
  - Experience

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Experience-Dependent Brain Plasticity and Social Interaction

- The origin of the development of "social skills" IS the interaction of the individual with meaningful individuals in his/her environment
  - Parents
  - Grandparents
  - Teachers/Therapists
  - Others

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Development of Connection
(Cozolino, 2006; Schore, 2003; Siegel D. J., 1999; Sroufe, 1995)

- Babies are born hard-wired for social interaction (amygdala)
- Mother and child's interactions subtly modify the nervous system of the other, leading to greater bonding
- Over time, the child's social and cognitive abilities modify as brain develops

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Development of Connection (cont.)
(Cozolino, 2006; Schore, 2003; Siegel D. J., 1999; Sroufe, 1995)

- As the child's capabilities change, mother allows for greater independence and autonomy within structured interactions which further allows for brain growth
- As the child gets older, the child's developing cognitive capabilities, emotional regulation, and social competencies allow the child to start to interact and develop relationships with others
- The child will initially use his/her parents as a "secure base" for these interactions, but will over time develop new attachments that will further inspire changes in ability and brain structure

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Principles of Experience-Dependent Brain Plasticity and Social Interaction
(Kleim & Jones, 2008; Elbert & Rockstroh, 2004)

- Use It or Lose It
- Use It and Improve It
- Fire Together, Wire Together
- Specificity
- Repetition Matters
- Intensity Matters
- Timing Matters
- Salience Matters
- Transference Matters
- Interference Matters

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Applying the Principles of Experience-Dependent Plasticity to Intervention with Social Interaction Skills

- Establish environment for social interaction-- avoid over-stimulating environment
  - Limit scope of environment that individual has to attend to
- Establish rules for social interaction
- Establish adult role in social interaction as partner, mentor (Gutstein, 2007), and interpreter (Jacobsen, 2003)
- Establish child role in social interaction as partner, mentee (Gutstein, 2007), and learner (Jacobsen, 2003)

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Applying the Principles of Experience-Dependent Plasticity to Intervention with Social Interaction Skills

- Do something novel
- Do something interesting
- Balance novelty and predictability to maintain arousal at optimal level
- Associate reward/motivation with attachment/ social interaction
- Maintain focus on "goal" of activity—social interaction

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Making Experiences Meaningful: Saliency

- Experiences must be "authentic"
- Experiences must be meaningful to the individual
- Experiences must be motivating
- Experiences need to "practice" the interaction and skills

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Tools for Assessment

- Affect-Based Language Curriculum—(Greenspan & Lewis; 2005)
- SCERTS (Social Communication, Emotional Regulation, Transactional Supports)—(Prizant, Wetherby, Rubin, Laurent, & Rydell; 2006)
- Relationship Development Inventory (Gutstein & Sheely; 2002)
- Social Language Development Test (Linguisystems, 2008)
- The Dyssemia Rating Scale (Nowicki & Duke, 2002; Dunn Buron, 2004)

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Treatment Ideas

- Attunement & Empathy
- Priming
- Video Modeling
- RDI
- Narrative
- Play and Sand Play
- Peer Buddy
- ILAUGH (Winner, 2002, 2005, 2008)

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Executive Functions

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Definition

- "Elusive to define operationally" (Barkley, 1996)
- The brain system believed to be responsible for managing processes needed in order to solve problems and attain future goals. (Pennington, 1991; Pennington & Ozonoff, 1996)
- "Executive skills allow us to organize our behavior over time and override immediate demands in favor of long-term goals. Executive skills enable us to manage our emotions and monitor our thoughts in order to work more efficiently and effectively" (Dawson & Guare, 2004)

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Executive Functions

- Planning
- Organizing
- Predicting
- Flexibility
- Goal Persistence
- Executive Attention
- Sequencing
- Self/Emotional Regulation
- Time Management
- Self-Talk/Internalization of Speech

- Initiation
- Prioritizing
- Metacognition
- Self-Monitoring
- Self-Control
- Working Memory
- Impulse Control/ Response inhibition
- Evaluation
- Problem Solving

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Neurologic Structures

- Prefrontal Cortex
  - Ventrolateral PFC
  - Dorsolateral PFC
  - Rostral PFC
  - Orbitofrontal PFC
- Cingulate Cortex
- Basal Ganglia/Striatal Structures
- Cerebellum

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Inverse Relationship Between Arousal (Anxiety) and Executive Function Skills

- As arousal increases (beyond an optimal level) our ability to use executive skills to control behavior decreases.
- As we use our executive skills to control behavior, arousal decreases (toward an optimal level)
- Circuitry between amygdala and prefrontal cortex

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Executive Functions and Social Interaction

- Predicting the beliefs, intentions, behaviors of others—Theory of Mind
- Working Memory and Theory of Mind
- Impulse Control and Theory of Mind
- Executive Attention and Imitation
- Increasing complexity of regulatory mechanisms

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Executive Function Difficulties Which Impact on Social Interactions

- Difficulty attending to social information—executive attention
- Difficulty attending to, holding in memory, internalizing, and generalizing "hidden" rules of social interactions
- Inflexibility—rigidity in thinking patterns
- Difficulty holding information/events in mind
- Difficulty reflecting on past behavior and formulating new responses
- Difficulty predicting others intentions, emotions, etc…

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Executive Function Difficulties Which Impact on Social Interactions

- Impulsivity leads to awkward/tactless interactions
- Difficulty inhibiting thoughts, actions, etc…, which interfere with current interactions
- Perseveration on areas of interest, prior topics, events that are emotionally arousing interferes with current interactions
- Difficulty initiating interactions
- Difficulty organizing and sequencing multiple responses in an interaction
- Poor regulation of emotions, a tendency to become dysregulated and overwhelmed

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Executive Function Difficulties Which Impact on Social Interactions

- Difficulty planning for future interactions—difficulty anticipating the outcomes of their behavior
- Difficulty coordinating and integrating various modalities of social information—linguistic, vocal, nonverbal
- Difficulty with internalization of speech/self-talk
  - May lead to decreased abilities to manage own emotions
  - Increased difficulties formulating a coherent life narrative

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Assessing Executive Functions

- Behavior Rating Inventory of Executive Function (BRIEF)
- Thinking Skills Assessment Record—(Silver; 2005)
- Wechsler Intelligence Scale for Children-Fourth Edition
  - Working Memory Index
  - Processing Speed Index
- Clinical Evaluation of Language Fundamentals—4th Edition
  - Number Repetition-Forward and Reversed
  - Familiar Sequences
  - Rapid Automatic Naming
- Test of Auditory Processing Skills
  - Working Memory Index

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Other Measures of Executive Functions (Meltzer & Krishanan, 2007; Denckla, 1996)

- Delis-Kaplan Executive Function System
- Wisconsin Card Sorting Test
- Rey Complex Figure Test
- Survey of Problem-Solving and Educational Skills
- Metacognitive Awareness System
- Stroop Color Word Test
- California Verbal Learning Test

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Treatment of Challenges with Executive Functions

- Address arousal issues first
- Executive function prostheses
- Coaching related to executive functions (Dawson & Guare, 2004)
- Direct treatment of executive functions
- Computer software

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Emotion Recognition

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Neurologic Structures Important in Emotion Recognition

- Amygdala
- Prefrontal cortex
- Cingulate Cortex
  - Posterior/Retrosplenial
- Hypothalamus
- Hippocampus
- Fusiform Gyrus
- Right hemisphere

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Emotion Recognition and Social Interaction

- "The ability to use nonverbal information from facial expressions, vocal intonation, body language, and context to understand emotional and other mental states underlies social and communication skills." (Golan& Baron-Cohen, 2008)

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What Do We Use to Determine Emotion

- **Facial Expressions**
- Gestures
- **Vocal characteristics of speech**
  - Prosody
- **Biologic Motion**
  - Posture
  - Motion
- Linguistic Information
- Contextual Information

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Dimensions of Emotional Awareness
(adapted from LaBar & Cabeza, 2006)

- Attention to emotions of others
- Awareness of one's own emotions/arousal
- Valence of emotion
- Intensity of emotion

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Three Types of Signals Provided by the Face
(Ekman & Friesen, 2003)

- Static (such as skin color)
- Slow (such as permanent wrinkles)
- Rapid (such as raising the eyebrows).

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Assessing Competence
in Emotion Recognition

- Autism Research Centre—Simon Baron-Cohen (www.autismresearchcentre.com)
  - Faces Test
  - Eyes Test-Child
  - Eyes Test-Adult
  - Reading the Mind in the Voice Test
  - Cambridge Mindreading (CAM) Face-Voice Battery
- Differential Screening Test for Processing (Linguisystems)
  - Prosodic Interpretation Subtest

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Treatment of Challenges with Emotion Recognition

- Address arousal issues first
- Emotional Recognition Prostheses
- Computer software for working on emotional recognition
- Other approaches for working on emotion recognition

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Summary and Questions

- Summary
  - Current practices in social skills instruction may not be adequate for certain individuals who struggle with social interactions
  - Interventions may need to more dynamic, and address underlying challenges with both perception of social information and social thinking
  - Interventions may benefit from research related to brain-behavior interactions, particularly in the areas of:
    - Experience-Dependent Brain Plasticity
    - Executive Functions
    - Emotional Recognition
- Questions

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