ADHD, SLD and Pervasive Developmental Disorders

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Agenda

- Review- Challenges in Cognition and Learning
- Understanding ADHD
- Understanding Specific Learning Disabilities
- Pervasive Developmental Disorders- Understanding ASD

Group Work

- Count off 1-3
- 1's ADHD
- 2's SLD
- 3's ASD
- Provide the information requested in the handout for your group
- Be ready to share with the class in a poster format

Understanding ADHD

- An understanding of this disorder and how it impacts academics and social/emotional development
- Hands on strategies for teachers and parents to ensure a positive school experience
- An understanding of medical and behavioral management of ADHD
- Tools to support positive communication with families

Yes, ADHD is a Real Disorder

- Myth or Fact
  - **ADHD is not a mythical disorder fabricated by the American Psychiatric Association and pharmaceutical companies**
  - **Descriptions of behaviors that are indicative of ADHD go back to the year 1902**
  - **Diagnostic criteria have undergone several changes**

Manifestations of ADHD

1. ADHD Combined Type
   - Predominantly inattentive and hyperactive without significant impulsivity
2. ADHD Predominantly Inattentive Type
   - Primarily inattention without hyperactivity or impulsivity
3. ADHD, Predominantly Hyperactive-Impulsive Type
   - Hyperactive with impulsivity
4. ADHD, Not Otherwise Specified (NOS)
   - Doesn't meet full criteria of ADHD, but still have some continuing ADHD symptoms
   - Normally diagnosed in adolescents and adults

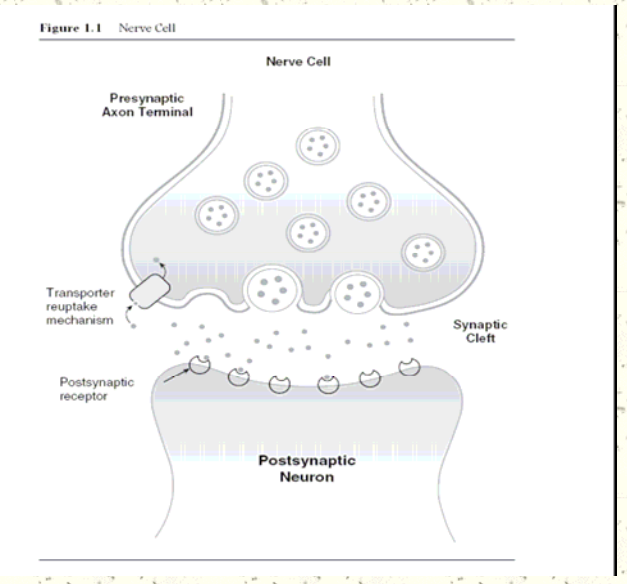
What Causes ADHD?

- Genetics
  - Heredity appears to be the most common identifiable cause of ADHD
  - Environment does play are role in the development of ADHD, it alone is not a cause

Neurotransmitters

- Two primary neurotransmitter systems involved in ADHD are dopamine and norepinephrine
  - Influence levels a variety of behaviors including attention, inhibition, motor activities, motivation,
- These two neurotransmitters work together to control attention, inhibition and motor planning
- Medications used to treat ADHD intervene by regulating norepinephrine and dopamine levels - normalizing brain function and improving self-control

The Nerve Cell



Recognizing ADHD: Primary Symptoms and Common Impairments

- Primary symptoms
  - Inattention
  - Hyperactivity
  - Impulsivity
- To be diagnosed with ADHD
  - Symptoms must be present in at least two settings
  - Must be clear evidence of interference with developmentally appropriate social, academic, or occupational therapy
  - Connors Scale utilized for assessment most often

Predominantly Inattentive

- May sit and zone out
  - Internally rather than externally distracted
- May seem under-active, foggy and cognitively sluggish
- Inattentive behaviors are often a result of an inability to block out useless information
  - Pay attention to everything
  - Drawn to those things that are immediately gratifying

Inattentive Behaviors

- Difficulty paying attention to directions
- Difficulty staying on task
- Does not seem to be listening to directions
- Does not complete school tasks
- Forgetful and forgets daily routines
- Inattentive during classroom discussions
- Plays alone and is often "in own world"
- Frequently daydreams

Inattention

- Difficulties with self regulation necessary to pay attention often result in
  - Trouble attending to the teacher/parents and following directions
  - Difficulty completing classroom activities due to daydreaming
  - Remembering to take things home
  - Remembering to take things to school

Attention Subtypes

- Divided attention
  - Inability to complete two tasks simultaneously
- Focused attention
  - Preoccupied with other activities instead of what is being talked about or the task at hand
- Selective attention
  - Distracted by outside or irrelevant stimuli
- Sustained attention
  - Not able to stay on task long enough, or maintain attention long enough to sufficiently complete a task
- Vigilance and readiness to respond
    - Unable to wait for the teachers prompt, or unable to listen, attend and respond

Inability to Self-Regulate Attention

- Variability in task performance
  - Erratic performance both academically and behaviorally
  - Academic breakdowns often occur in
    - Mastering of skills
    - Acquiring facts or knowledge
    - Accomplishing output
    - Understanding
    - Approaching tasks systematically
    - Trouble with rate and amount of demands

Hyperactive Behavior

- Fidgets with hands or feet, squirming in seat
- Leaves seat without permission
- Runs or climbs excessively
- Difficulty playing or engaging in leisure activities
- Talks excessively or makes noises
- Tosses toys or objects

Impulsive Behaviors

- Blurts out answers before questions have been completed
- Has difficulty waiting for turns
- Interrupts or intrudes on others
- Cannot wait for teacher to call on them
- Needs constant reinforcement or immediate gratification
- Will make errors in order to finish quickly
- Will begin assignments without waiting for direction
- Difficulty with tempering unhappy feelings

Impairments of Executive Functioning

- Refers to an individuals self directed activities that allow them to regulate their behaviors
- These functions may be impaired in children with ADHD affecting
  - Nonverbal working memory
  - Internalization of speech
  - Self-regulation of affect, motivation, and arousal
  - Reconstitution

Outcomes

- Overt hyperactivity and impulsivity tend to decline at young adulthood, but inattention persists
- ADHD persists in 30% to 60% of adults
- Adults with ADHD usually complete less school and have lower status jobs
- Those whose symptoms improve in adolescents have much better outcomes

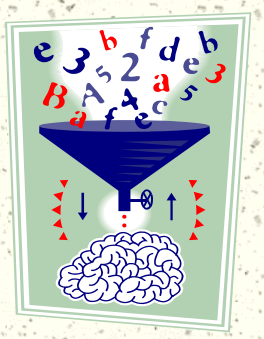
Learning Disabilities

- A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations
  - Excludes learning problems primarily result of visual, hearing or motor disabilities and those resulting from mental retardation, emotional disturbances or environmental, cultural, or economic disadvantage
  - Studies suggest a prevalence of 4 to 5 times greater incidence of boys being affected than girls, but the actual ratio is probably closer to 1:1
  - Heredity plays a large role in the etiology of learning disabilities-

Learning Disabilities

- Is a term used to describe a neurological disability that interferes with one's ability to:
  - Store
    - Process
      - Produce

Information



Learning Disabilities

May Have Difficulty in the Areas of:

- Language
- Memory
- Listening
- Conceptualization
- Speaking
- Writing
- Spelling
- Math
- Reading
- Motor Skills

Characteristics of Learning Disabilities

- Unexpected underachievement
- Lack of motivation or poor attribution
- Attention deficits
- Inability to generalize
- Faulty information processing
- Insufficient problem-solving strategies (Rivera & Smith, 1997)
- Students with LD may also develop learned helplessness and be inactive in the learning process
- Poor language and/or cognitive development
- Immature social skills
- Disorganization

Characteristics of Learning Disabilities

- Reading:
  - Students identified with LD have much lower reading abilities than students who are low achievers.
  - Reading is the most common reason for referrals to special education.
  - Reading/learning disabilities cause pervasive academic problems.
- Math:
  - Fifty percent of students with LD have disabilities with math (Fuchs & Fuchs, 2001).
  - Students with a math disability have trouble retrieving information from long-term memory.
  - Students need graphic representations and real-world examples to help them solve problems.

The Cause of Specific Reading Disability

- Efficient reading depends on rapidly, accurately, and fluently decoding and recognition of phonemes of single words
  - Phonological awareness includes understanding of word boundaries within spoken sentences, syllables boundaries within spoken words, and how to isolate these phonemes to establish their location within syllables and words
  - Phoneme awareness is the ability to analyze and manipulate sound within syllables and to count delete, and reorder them
  - If not able to comprehend that syllables and words are composed of phonemes and that these segments can be divided according to their acoustic boundaries, reading will be slow, labored inaccurate and comprehension will be poor. Represents an impairment in phonological awareness

Neuroanatomy of Specific Reading Disability

- The visual pathways of both eyes pass the print image to the visual cortex in the occipital lobes of the brain
  - Information is transferred forward to the left angular gyrus of the temporal lobe and to Wernicke's area
  - This area is critical to phonological coding-translation of written language to speech sound equivalents
  - The left temporal lobe is the area of language processing and is larger than the right temporal lobe
  - Children with dyslexia were found to have equal size on both the right and left side and a smaller corpus collosum

Neuroanatomy of Specific Reading Disability

- Neuroimaging studies have revealed
  - Decreased activation of the left temporal-parietal cortex
  - Dysfunction of the central visual pathways
  - Abnormalities in the thalamus, which is normally involved in attention and planning
- Suggests that reading involved the simultaneous activation of multiple associated cortical regions involving language, visual processing, attention and planning
- A defect anywhere in the network will affect the ability to read

Associated Impairments

- Impairments in the Executive Functions
  - The ability to maintain an appropriate problem solving set of procedures for attaining a future goal.
    - Included the ability to inhibit or defer a response, to formulate a sequential, strategic plan of action, and to encode relevant information in memory for future use
    - These skills are necessary for organizational skills. Planning, future-oriented behavior, maintaining problem solving procedures, impulse control, selective attention, vigilance, inhibition and creativity in thinking
    - Children with learning disabilities are more often impulsive rather than reflective

Associated Impairments

- **Memory Impairments**
  - Impairments in ability to listen, remember, and repeat auditory stimuli are associated with LD
  - Reading involves holding phonemic information in working memory while decoding
  - Children with LD have impaired phonological processing and impaired memory skills
- **Attention-Deficit/Hyperactivity Disorder**
  - One third of LD children have ADHD
- **Social Skills Impairment**
  - Impaired social skills: cannot read body language, poor social comprehension, inability to take perspective of others, poor pragmatic language skills

Associated Impairments

- **Emotional and Behavior Disorders**
  - May be biological, but also most likely result of the child's school failure
  - Exhibit a range of disorders
    - Conduct disorder, withdrawal, poor self-esteem and depression
    - Exhibit chronic frustration and anxiety due to the demands of skills based tasks
    - Experience school failure, social skills impairment, peer rejection, poor self image and lack of involvement in school activities
    - May avoid going to school, or act out in school for attention and due to frustration

Early Identification

- Age of diagnosis depends on type of disability, severity, associated problems, intelligence and parental concerns
- Most commonly diagnosis does not occur until the school age years.
  - Symptoms are present in preschool years, but are often not identified
    - Weakness in the comprehension of semantics and syntax are early predictors of reading difficulties, although items most commonly asked on preschool readiness scales do not identify learning disabilities
    - Newer tests of language and memory function with grapheme-phoneme associations and rapid retrieval from long term memory are better indicators of LD
  - Impairments in visual perceptual skills are more difficult to diagnose in preschool years
    - Inability to distinguish right from left may be a marker for LD,but not until the age of 6 can a child do this consistently

Early Identification

- Other children may demonstrate learning differences as a consequence of another developmental disability, chronic illness, or psychosocial problem.
  - Providing services to these children when misdiagnosed has limited benefit
  - Underlying problem must be addressed
  - Acute disorders such as meningitis, TBI or encephalitis can result in development of learning problems
  - Psychosocial influences like hunger, family violence, poor environment also make learning difficult

RTI as part of SLD Identification

SLD Determination and IDEA 2004

(P.L. 108-446)

New language in the law:

"…a local education agency may use a process that determines if the child responds to scientific, research-based intervention as a part of the evaluation procedures…"

Sec. 614(b)6B [emphasis added]

In the special education research literature, the process mentioned in this language is generally considered as referring to RTI.

From opening remarks by Lou Danielson, Ph.D., Director, Research to Practice Division, Office of Special Education Programs to the National SEA Conference on SLD Determination, Kansas City, MO, April 19-21, 2006

Assessment Procedures

- IDEA 2004 changed the law regarding the identification of Specific Learning Disabilities
- In the past assessments were intended to identify an ability-achievement discrepancy
  - In order to obtain this discrepancy, an IQ test and an achievement test had to be administered
  - New law allows for patterns of strengths and weaknesses to emerge and for a lack of response to research based intervention as one of the eligibility criteria.
  - A multi-disciplinary assessment is still necessary in order to make an SLD determination but an IQ test is no longer required

Intervention Strategies

- Goals of intervention are to achieve academic competence, treat associated impairments, and prevent adverse mental health outcomes.
- Requires the cooperation of educators, health care professionals and parents
  - If meaningful intervention in the area of reading does not occur by the end of third grade, without intensive intervention, a large majority of children with LD will show little improvement in reading in the rest of their school career.
  - In treating core disability, strategies must also focus on associated cognitive, attentional, perceptual, and sensory impairments

Intervention Strategies

- Instructional Interventions
  - Reading: the major goal of reading instruction is to improve phonological awareness so that there is effective word recognition and comprehension of meaning
    - Reading activities need to focus on helping the child become attuned to the sound characteristics of language(phoneme awareness), and the utility of letter-sound relationships (alphabetic principle)
  - Elementary education focuses on phonics, sight vocabulary, and comprehension
  - Middle and high school focus is on reading for meaning in content related materials
  - Students with LD will need accommodations that will allow them access to the core curriculum

Outcomes

- Prognosis for adults with LD are mixed and often depend on family support
  - Most gain academic skills required for everyday functions
  - More students are pursuing postsecondary education with support
  - More students with LD are completing college

Pervasive Developmental Disorder

- Autism Spectrum Disorder falls under this umbrella category
- PDD includes four other related developmental disorders
  - Asperger's Syndrome
  - Childhood Degenerative Disorder
  - Rett's
  - Pervasive Developmental Disorder – Not Otherwise Specified (PDD-NOS)
- Disorders share similar behavioral traits, including problems with:
  - Communication
  - Social skills
  - Patterns of behavior, or range of interests

ASD & Autism

- Autism
  - A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's performance
  - Other characteristics
    - engagement in repetitive activities and stereotyped movements resistance to environmental change in daily routines unusual response to sensory experiences.
- ASD
  - Does not follow typical patterns of development
  - Problems with communication and social skills
  - Between 12 and 36 months: differences in reactions and unusual behaviors appear
  - Defined by a certain set of behaviors that can range from mild to the severe

Characteristics of Autism

- Impairment in social interactions
  - Do not have:
    - Normal attachments to family members
    - Friendships
    - Emotions rarely displayed
    - Nonverbal intent
    - Eye contact
    - Imaginative play
    - Social communication gestures
    - Understanding of others emotions
    - Cooperate or share interests with others
- Poor communication abilities
  - Emotional language not mastered
  - Content of language often unrelated
  - Utterances are stereotypical and repetitive
  - Nonverbal cues are misunderstood
  - Conversations not maintained or initiated
  - Speech is echolalic
  - Expressive and receptive language is literal
  - Verbal turn taking is rare
  - May fail to use pronouns appropriately

Characteristics of Autism

- Insistence on Sameness
  - Distressed when trivial or minor changes occur in environment
  - Aspects of daily routine become ritualized
  - Obsessive compulsive disorders displayed
  - Required self-imposed actions
  - Stereotypic behaviors (rocking, hand flapping) repeated in cycles and difficult to stop
- Unusual behavior patterns
  - Hypersensitive to visual, tactile or auditory stimulation
  - Aggression to others when compliance is requested
  - Self-injurious behavior
  - Extreme social fears related to strangers, new situations and new environments
  - Loud noises result in startle and fearful reactions
  - Severe sleep problems
  - Noncompliant behavior resulting in tantrums
  - Self-stimulation (twirling objects, rocking) consume time and energy
  - No ability to pretend

Characteristics

- Characteristics include:
  - No specific physical features
  - Present from birth, or from early in the developmental period
  - Affects communication, social interactions, and a range of interests and behavioral repertoires
- Other facts include:
  - 75% have mental retardation
  - 50% never develop functional speech
  - 40% engage in self-injurious behavior
  - 4 out of 5 are male
  - 33% have epilepsy (Sturmey & Sevin, 1994)

Aspects of ASD

- ASD affects the neurodevelopment system resulting in distinct learning and behavioral characteristics
- ASD have an underlying biological/genetic cause producing organic and physical changes during brain development
  - Resulting in atypical cognitive and social development and behaviors

Aspects of ASD

- ASD affects individuals uniquely, but may exhibit many characteristic behaviors throughout lifetime
- ASD is not the result of poor parenting
- ASD impacts more than behavior
- ASD affects the individual's ability to integrate sensory information and regulate emotions

Diagnosis of ASD

- DSMV-IV provides five deficit areas to consider:
  - Communication
  - Socialization/social skills
  - Restricted interests
  - Sensory integration
  - Behavior

Early Signs of ASD

- Marked deficiencies identified early in life
  - Poor eye contact
  - Poor coordination of eye gaze with vocalization or gestures
  - No pointing to or showing of objects
  - Inability to follow another's focus of attention through eye gaze or gesture
  - Less preverbal babbling
  - No reciprocity in vocalizing or imitation

Early Assessment Tools

- Screening tools specific to ASD
  - The Stage 2- Pervasive Developmental Disorders Screening Test (PDDST-II)
  - The Modified Checklist for Autism in Toddlers (M-CHAT)
  - The Checklist for Autism in Toddlers (CHAT)
  - The Screening Tool for Autism in Two-Year-Olds (STAT)

Comprehensive Diagnostic Assessment

- Review of relevant background information
- Parent/Caregiver interview
- Comprehensive Medical Evaluation
- Direct Observation
- Cognitive Assessment
- Measures of Adaptive Functioning

Components of Assessment for Intervention Planning

- Communicative: Speech and Language
- Motor skills/sensory/processing
- Behavioral Functioning
- Adaptive functioning
- Learning styles/cognitive abilities
- Family functioning and coping resources

Core Deficits of ASD

- Difficulty with
  - identifying global concepts and elements of tasks
  - Processing auditory information- understanding, retaining and retrieving
  - Generalizing skills
  - Sequencing information or steps in a task
  - Transitioning between different activities
  - Time concepts and time management
  - Atypical and/or uneven academic, social, or emotional development

Features and Strategies for Intervention

- No single approach effective for every individual with ASD
- Planning intervention requires careful consideration of
  - Families vision for the child
  - Child's communication proficiencies
  - Child's cognitive ability

Educational Approaches

- Successful early childhood programs:
  - *Applied Behavior Analysis (ABA)*
  - *Treatment and Education of Autistic and Communication-Handicapped Children (TEACCH)*
  - *Developmental-Individual Difference-Relationship Model (DIR model)*
  - *Relationship Development Intervention (RDI)*
- Key elements:
  - Supportive teaching environments
  - Plans for generalization
  - Predictable and routine schedules
  - Functional approaches to addressing problem behaviors
  - Family involvement and support

Intervention Strategies

- Use consistent routines
- Provide visual instruction, routines, schedules
- Recognize anxiety levels and signs of sensory integration and/or emotional regulation difficulties
  - Use calming activities to avoid stress
    - Brushing, compression, compression items such as koosh balls, weighted blankets or vests
- Recognize the difficulties associated with transitions
  - use visuals to predict and reinforce what happens during transitions

Communication

- Children with ASD have difficulty understanding and using language
- Result from early difficulties with joint attention and symbol development
- Affect academic, content skills and socialization

Communication and ASD

- Deficits in communication in the following areas:
  - Motor planning for speech production due to deficient or underdeveloped sensory feedback system
  - Echolalia- vocal perseveration, distinct and repetitive vocalizations of speech or sounds
  - Auditory memory, auditory processing, and executive functioning
  - Reciprocity and perspective taking in conversations
  - Initiating, terminating or repairing conversations

Communication- Strategies

- Receptive
  - Pre-teach new concepts and vocabulary
  - Model procedures, expectations, thinking strategies and directions
  - Post permanent visual reminders and visual supports
  - Pair verbal instruction with visual cues
- Expressive
  - Develop a functional communication system
    - Picture Exchange System (PECS)
  - Provide communication supports that facilitate independence for soliciting help or clarification

Sensory Integration and Regulation

- Brain process information provided by sensory system
- Sensory integration is the way the brain processes, organizes, and interprets information coming from the sensory system.
- Processing sensory information is a critical foundation for complex learning and behaviors

Sensory Integration and Regulation

- Children with ASD exhibit deficits in:
  - Sensitivity or insensitivity to sensory information
  - Attention and focus
  - Regulation of activity level
  - Transitions between activities
  - Control of impulses, behavior, and/or fear in dangerous situations
  - Fine or gross motor skills, motor planning, or coordination
  - Oral motor
  - Recognition of personal space

Sensory Integration and Regulation- Strategies

- Physical Layout
  - Visual listing of instructions, routines, schedules
  - Delineate work areas, sensory areas, leisure free time areas
  - Provide a quiet place to escape from over stimulation
- Movement Activities that promote task engagement
  - Provide opportunities for rhythmic sustained movement
  - Provide a chance to do sensory tasks before more structured work
  - Provide tasks that allow for movement
  - Use timers for specific tasks

Sensory Integration and Regulation- Strategies

- Accommodations for sensory sensitivities
  - Provide a menu and daily opportunities for stress release activities
  - Keep stress relief materials in a specific place
  - Minimize auditory and visual distractions
  - Identify appropriate activities for unstructured time
  - Avoid crowded places
  - Allow chew toys
  - Allow the use of headphones to drown out auditory stimulus

Socialization/Social Skills

- Children with ASD exhibit deficits in
  - Engaging in reciprocal social interactions
  - Maintaining eye contact during conversations
  - Attention to non-verbal aspects of communication
  - Engaging in a non-preferred topic
  - Feeling empathy
  - Demonstrating age appropriate social skills
  - Initiating conversations

Social Skills- Strategies

- Teach the association of facial features and emotions
- Teach how to participate in conversations
- Rehearse skills needed for social interactions
- Use social stories to support how to act in social situations
- Practice skills to appropriately leave social interactions when stressed
- Practice transitions between preferred and non-preferred activities

Behavioral Issues

- Children with ASD exhibit immature and developmentally inappropriate behaviors that cannot be attributed to cognitive skills
- Behavior is results from frustration and anxiety due to difficulties with communication, sensory regulation, and social interactions.
- Aggressive acting out behaviors usually result from heightened levels of anxiety due to unexpected changes in routines, schedules or an inability to transition to a non-preferred activity

Behavioral Issues

- Children with ASD exhibit all or some of the following deficits:
  - Ritualistic and compulsive (highly repetitive) behaviors
  - Impulsivity (disruption due to sensory needs)
  - Stereotypic behaviors (behaviors involving physical movement that seems to serve no purpose.
  - Aggression (towards self or others)
  - Inappropriate social interactions

Behavioral Strategies

- Ritualistic and Compulsive
  - Intervene early to avoid it becoming a habit
  - Teach and use ritualized behavior when appropriate
- Impulsivity
  - Create procedures that keep the environment predictable
  - Use social stories to teach social skills
  - Rehearse appropriate behaviors
- Stereotypic
  - Provide a menu of appropriate sensory interventions to aid with sensory regulation
  - Develop a daily sensory schedule

Behavioral- Strategies

- Aggression
  - Remove or minimize environmental stressors
  - Restructure necessary stressors to ease transitions
  - Clearly identify all components of a task
  - Provide clear visual directions
- Inappropriate social interactions
  - Rehearse appropriate social interactions
  - Reward appropriate behaviors
  - Use social stories

Restricted Interests

- Children with ASD may have very restricted interests that border on obsession
- These narrow topics dominate their concentration and contribute to their inflexibility and inability to transition
- Routines and procedures help them deal with interruptions that crowd their concentration on their topic

Restricted Interests- Strategies

- Allow breaks during the day to pursue their topic of interest
  - These lower their anxiety level and can be used for reinforcement
- Introduce new activities incrementally
  - Provide opportunities to explore topics not related to theirs

Outcomes

- Best predictor of outcomes is cognitive ability and language that can be used for conversation
- More than 50% of children with ASD have language sufficient to hold a conversation
- Large number of students do have typical cognitive abilities
- Continue to need to provide specific intervention program to all children with ASD

Resources for ASD

- http://www.nih.gov
- http://www.cdc.gov\ncbddd
- http://www.cureautismnow.org
- http://www.naar.org
- http://www.autism-society.org
- http://www.nea.org

Resources for ADHD and SLD

- http://www.additude.com
- http://www.allkindsofminds.org
- http://www.chadd.org
- http://www.cec.sped.org
- http://www.ldonline.org
- http://www.ldanatl.org
- http://www.ncld.org

Resources for ADHD and SLD

- *Teaching Young Children with ADHD*, Lougy, DeRuvo, & Rosenthal, 2007.
- *The School Counselor's Guide to ADHD*, Lougy, DeRuvo, Rosenthal, 2009
- *How to Reach and Teach ADD/ADHD Children*, Rief, 1993
- *Learning the ROPES for Improved Executive Function*, Schetter, 2004