

Autism 101

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Introduction Activity

- The Monkey Business Illusion:
http://www.youtube.com/watch?v=IGQmdoK_ZfY
- Heider Simmel Cartoon: <http://vimeo.com/36847727>
- Micro-expression Training Tool

Molton, 2000

“My ability to behave near normally at times has led others to believe that I can do it all the time and if I don’t then I am lazy, unmotivated, manipulative, and deliberately annoying.”

For (people with autism), autism is a way of being. It is pervasive, it colors every experience, every sensation, perception, thought, emotion—in short, every aspect of existence (Sinclair, 1993).

O'Neill, 1997

- (Children with autism) ...don't deserve to be molded into someone they are not. They deserve to learn and grow and feel comfortable about themselves. Their worlds can expand to include new experiences, and they can become teachers, opening others to their viewpoints.

What is Autism?

- Autism is a difficult term to define because the disability is complex and no two individuals with the label of autism experience it the same way (Kluth, 2003).
- Autism is defined by the behaviors that are seen by others (i.e., DSM-5). Its expression in each individual is unique to that person; although how it is manifested may change over time (due to a variety of factors).

What is Autism?

(Janzen; 2003)

- “Autism is a neurobiological disorder of development...that causes discrepancies or differences in the way information is processed. These information-processing differences affect the (individual’s) ability to:
 - Understand and use language...
 - Understand and relate in typical ways to people, events, and objects in the environment
 - Understand and respond to sensory stimuli
 - Learn and think the same way as (neurotypical) children”

New Criteria for ASD

DSM 5

(American Psychiatric Association, 2013)

- A. Persistent deficits in **use or understanding of social communication** and **social interaction in multiple contexts**, as manifested by the following, currently or by history (examples are illustrative, not exhaustive):

Deficits in Social Communication and Social Interaction (cont.)

1. Deficits in **social-emotional reciprocity**, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions.

Deficits in Social Communication and Social Interaction

2. Deficits in **nonverbal communicative behavior** used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication.

Deficits in Social Communication and Social Interaction (cont.)

3. Deficits in **developing, maintaining, and understanding relationships**, ranging, for example, from difficulties adjusting behavior to suit various social contexts; to difficulties sharing imaginative play or in making friends; to absence of interest in peers.

New Criteria for ASD DSM 5

(American Psychiatric Association, 2013)

- B. **Restricted, repetitive patterns of behavior, interests, or activities** as manifested by at least two of the following, currently or by history (examples are illustrative, not exhaustive):

Restricted, Repetitive Patterns

1. **Stereotyped or repetitive motor movements**, use of objects, or speech; (e.g. simple motor stereotypies, lining up toys or flipping objects, echolalia, or idiosyncratic phrases).

Restricted, Repetitive Patterns (cont.)

2. **Insistence on sameness, inflexible adherence to routines, or ritualized patterns** of verbal or nonverbal behavior (e.g., extreme distress at small changes, difficulties with transitions, rigid thinking patterns, greeting rituals, need to take same route or eat same food every day).

Restricted, Repetitive Patterns (cont.)

3. **Highly restricted, fixated interests that are abnormal in intensity or focus** (e.g., strong attachment to or preoccupation with unusual objects, excessively circumscribed or perseverative interests)

Restricted, Repetitive Patterns (cont.)

4. **Hyper- or hypo- reactivity to sensory input or unusual interest in sensory aspects of environment** (e.g., apparent indifference to pain/temperature, adverse response to specific sounds or textures, excessive smelling or touching of objects, visual fascination with lights or movement).

New Criteria for ASD DSM 5

(American Psychiatric Association, 2013)

- C. Symptoms must be present in **early developmental period** (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learned strategies in later life).

New Criteria for ASD DSM 5

(American Psychiatric Association, 2013)

- D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning.

New Criteria for ASD DSM 5

(American Psychiatric Association, 2013)

- E. These disturbances are not better explained by **intellectual disability** (intellectual developmental disorder) or **global developmental delay**. Intellectual disability and autism spectrum disorder frequently co-occur; to make comorbid diagnoses of autism spectrum disorder and intellectual disability, social communication should be below that expected for general developmental level.

New Criteria for ASD

DSM 5

(American Psychiatric Association, 2013)

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

New Criteria for ASD

DSM 5

(American Psychiatric Association, 2013)

- Specify if:
 - With or without accompanying intellectual impairment
 - With or without accompanying language impairment
 - Associated with a known medical or genetic condition or environmental factor (use additional code to identify the associated medical or genetic condition)
 - Associated with another neurodevelopmental, mental, or behavioral disorder [use additional code(s) to identify the associated neurodevelopmental, mental, or behavioral disorder(s)]
 - With catatonia (refer to criteria for catatonia associated with another mental disorder)

Dimensional Ratings for DSM 5 ASD (Lord, 2012)

Dimensional Ratings for DSM 5 ASD	Social Communication	Fixated Interests and Repetitive Behaviors
Requires very substantial support	Minimal social communication	Marked interference in daily life
Requires substantial support	Marked deficits with limited initiations and reduced or atypical responses	Obvious to the casual observer and occur across contexts
Requiring support	Without support, some significant deficits in social communication	Significant interference in at least one context
Subclinical symptoms	Some symptoms in this or both domains; no significant impairment	Unusual or excessive but no interference
Normal variation	Maybe awkward or isolated by WNL	WNL for developmental level and no interference

Severity levels for autism spectrum disorders (American Psychiatric Association, 2013)

- Level 1 “Requiring support”
 - Social communication: without supports in place, deficits in social communication cause noticeable impairments. Difficulty initiating social interactions, and clear examples of atypical or unsuccessful responses to social overtures of others. May appear to have decreased interest in social interactions.
 - Restricted, repetitive interests: inflexibility of behavior causes significant interference with functioning in one or more contexts. Difficulty switching between activities. Problems of organization and planning hamper independence.

Severity levels for autism spectrum disorders (cont.)

(American Psychiatric Association, 2013)

- Level 2 “Requiring substantial support”
 - Social communication: marked deficits in verbal and nonverbal social communication skills; social impairments apparent even with supports in place; limited initiation of social interactions; and reduced or abnormal responses to social overtures from others.
 - Restricted, repetitive interests: inflexibility of behavior, coping with change, or other restricted/repetitive behaviors appear frequently enough to be obvious to the casual observer and interfere with functioning in a variety of contexts. Distress and/or difficulty changing focus or action.

Severity levels for autism spectrum disorders (cont.)

(American Psychiatric Association, 2013)

- Level 3 “Requiring very substantial support”
 - Social communication: severe deficits in verbal and nonverbal social communication skills cause severe impairments in functioning, very limited initiation of social interactions, and minimal response to social overtures from others.
 - Restricted, repetitive interests: inflexibility of behavior, extreme difficulty coping with change, or other restricted/repetitive behaviors markedly interfere with functioning in all spheres. Great distress/difficulty changing focus or action.

Autism as...

- A difference in neurobiological makeup
- A difference with social cognition
- A difference in perception
- A difficulty with self-regulation

Neuro- of ASD

- Changes noted in...
 - Size of the brain, particularly in younger children (pruning of pathways)
 - Amygdala/Limbic system (fight or flight)
 - Corpus callosum (communication between hemispheres)
 - Pre-frontal cortex (higher order thinking, EF)
 - Cerebellum (timing and synchrony)
 - Basal ganglia (movement and tics)
 - Fusiform gyrus (face processing)
 - Neuropeptides/Neurohormones: Cortisol, Oxytocin, and Vasopressin (stress and bonding)

Relatively Recent Findings

- Enactive mind (Klin, Jones, Schultz, Volkmar; 2003)
- Mirror Neurons (Rizzolatti, Craighero; 2004) (Rizzolatti, Arbib; 1998) (Kohler, et. al.; 2002) (Keyser, et. al.; 2003) (Williams, et. al.; 2001)
- Extreme male brain (Baron-Cohen; 1999)
 - Empathizing
 - Systematizing

Social Cognitive Difficulties and ASD (Stokes)

- Social Relation Difficulties
- Social Communicative Difficulties
- Difficulty Representing Language Internally
- Insistence on Sameness
- Emotional Vulnerability
- Restricted/Perseverative Range of Interests
- Difficulty Taking the Perspective of Others

We think about the world in
the way that we experience
it to be. (Bogdashina; 2003)

Perception and ASD

(Bogdashina; 2003)

- ‘If you have a camel which is finding it hard to walk under the weight of all the straws on its back, the easiest way to make it easier for the camel to walk is to take as many straws off its back as possible’, and not to train ‘...the camel to walk or appear to walk whilst carrying the straws. To take the straws off the camels back, you have to do two things. One is to identify them and second is to know how to remove them.’

Regulation and ASD

- Homeostatic regulation
 - Sleep disorders
 - Feeding disorders
 - Gastrointestinal disorders

Regulation and ASD

- Arousal regulation
 - Anxiety
 - Agitation
 - Aggression
 - “Fight or Flight”

Regulation and ASD

- Emotional regulation
 - Affective regulation difficulties
 - Difficulty recognizing the emotions of others
 - Difficulty monitoring own emotions
 - Difficulty maintaining emotions
 - Difficulty inhibiting emotions

Regulation and ASD

- Cognitive regulation
 - Executive functions deficits
 - Behavioral inhibition difficulties
 - Narrative difficulties

Regulation and ASD

- Social regulation
 - Difficulty forming and maintaining meaningful/reciprocal relationships
 - Difficulty understanding social cues/rules/norms
 - Difficulty taking the perspective of others

Theoretical Frameworks

Theoretical Frameworks for ASD

(Sansosti, Powell-Smith, & Cowan, 2010)

- Theory of Mind
 - The ability to infer and appreciate the mental states of others and apply this understanding to explain and/or predict individuals' behavior.
 - The ability to recognize and think about others' thoughts and feelings are of central importance for social interaction, understanding, and communication.

Theory of Mind

- The understanding that other people have thoughts, beliefs, ideas, feelings, desires, etc..., that influence their behavior
- “the ability to attribute knowledge, feelings, and intentions to others.” (de Waal, Good Natured, 232)
- “our ability to explain and predict other people’s behavior by attributing to them independent mental states, such as belief and desires.” (Gallagher & Frith, Functional Imaging of “Theory of Mind”, 77.)

Theory of Mind

- Theory of mind “...refers to two important abilities, (a) the capacity to recognize the thoughts, beliefs, and intentions of others and understand that these mental states are different from our own; and (b) using this understanding to predict the behavior of others.”
(Carnahan & Williamson, 2010)

Mental States

- Purpose of intention
- Knowledge
- Belief
- Thinking
- Trusting
- Wanting
- Guessing
- Doubt
- Pretending
- Deceit
- Feeling

Theory of Mind: AKA

- Mental state attribution
- Mindreading
- Mentalizing
- Perspective taking
- Empathic accuracy

Theory of Mind and ASD

- May have difficulty understanding that others have thoughts, feelings, ideas, etc...
- May have difficulty taking into account others thoughts, feelings, ideas, etc..., when communicating or interacting with them
- May have difficulty appreciating/valuing others thoughts, feelings, ideas, etc...
- May have difficulty taking the perspective of others during a conversation.
- May believe that others have the same thoughts and opinions that they do (Boutot & Myles, 2010)
- May have difficulty understanding why others would make a particular choice or do something because they themselves would not do so (Boutot & Myles, 2010)

Theoretical Frameworks for ASD

(Sansosti, Powell-Smith, & Cowan, 2010)

- Executive Functioning
 - A broad group of cognitive strategies, which include working memory, planning, mental flexibility, task initiation and performance monitoring, self-regulation, behavior inhibition, and attention skills.

Executive Function in ASD

- The neural system or systems underlying executive functions are responsible for the broad skills of organization, regulation, and awareness. (Killiany et al., 2005)
 - Organizational skills include: guiding attention, concentration, making decisions, planning, and sequencing
 - Regulational skills include: initiating behavior, repeating responses, and controlling anger, inhibiting irrelevant responses
 - Awareness skills include: recognizing deficits in oneself, complying to the social norm, and using feedback to regulate behavior

Executive Functions

For general learning, attention must be guided appropriately, irrelevant responses must be inhibited, rules must be extracted from examples and goals must be generated as a task is executed (Volkmar et al., 2004)

Executive function in ASD

(Tager-Flusberg, 2010; Boutot & Myles, 2010)

- Executive function impairments are found among range of children with ASD, and other disorders (e.g., ADHD):
 - Working memory
 - Planning and Organization skills
 - Inhibiting prepotent response
 - Shifting sets
 - Monitoring actions
 - Metacognition
 - Problem solving
- Executive functions are generally controlled by the frontal lobes

Central Coherence

(Carnahan & Williamson, 2010)

- “...typically developing individuals focus on meaning or the big picture of events at the expense of small details.”
- “Our primary goal when presented with an event, concept, or task is to understand the central tenets and create meaning from the smaller parts.”

Theoretical Frameworks for ASD

(Sansosti, Powell-Smith, & Cowan, 2010)

- Central Coherence
 - The general tendency of individuals to integrate, or simultaneously process, incoming pieces of information into meaningful wholes.
 - Individuals with strong central coherence tend to recognize and understand the gist of information and events yet fail to attend to or memorize details.
 - Individuals with weak central coherence tend to sequentially process information by focusing on the fine details or parts of a stimulus, causing them to overlook the global picture.

Central Coherence and ASD

- Individuals with autism have a strength in the ability to focus on the detail, but have more struggles with perceiving the whole, essence, or entirety of a situation.
- Some individuals with ASD may attend to irrelevant features of materials or the environment to the exclusion of more salient features
- These individuals may attend to specific parts or aspects of a situation without regard for the context within which the situation occurred. (Carnahan & Williamson, 2010)

Cognitive Patterns Noted for Adolescents and Adults with ASD

(MinsheW & Williams, 2008)

- Cognitive strengths found in studies
 - Basic attention
 - Sensory perception
 - Elementary motor
 - Simple memory
 - Formal language
 - Rule learning
 - Visuospatial processing
- Cognitive weaknesses
 - Higher cortical sensory perception
 - Complex/skilled motor movements
 - Memory for complex material
 - Higher-order language skills
 - Flexibility
 - Concept formation

ASD in the Classroom

(Tager-Flusberg, 2010; Boutot & Myles, 2010)

- Poor organization skills
- Difficulty understanding language arts/history narratives
- Asking and answering questions
- Tangential/off-topic discussions
- Perseveration
- Behavior is rigid and inflexible (e.g., routines must be followed exactly)
- Slow reaction time
- Lack of spontaneity
- Difficulty with impulsivity or distractibility, particularly when encountering new situations

ASD in the Classroom

(Mesibov & Shea, 2008)

- Difficulty with (generating), combining or integrating ideas
- Difficulty with sequencing and organizing ideas, materials, and activities
- Difficulties with time concepts—includes moving too quickly or too slowly for environment; have difficulty recognizing the beginning, middle or end of an activity
- Become attached to routines, so that activities may be difficult to transfer or generalize from the original learning situation, and disruptions can be upsetting, confusing, or uncomfortable
- Very strong interests and impulses to engage in favored activities

Summary and Questions