



THE UNIVERSITY OF NORTH CAROLINA

**TEACCH**<sup>®</sup>

Autism Program

*Services Across the Lifespan*

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# Learning Styles of Autism

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THE UNIVERSITY  
of NORTH CAROLINA  
at CHAPEL HILL



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COMPLIANT

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# Objectives of Presentation

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- Overview of the TEACCH Autism Program
- Identify the unique learning styles associated with autism



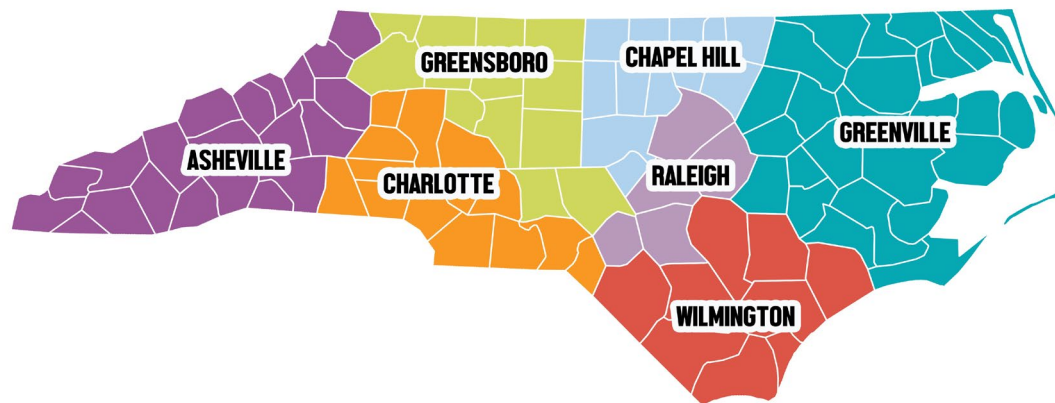
# A Note About Language

## Identity First Vs. Person First Language Discussion

- Many self-advocates prefer identity-first language (“autistic adult”) because autism is understood to be an inherent part of the individual’s identity
- Many parents and professionals prefer person-first language (“person with autism”) in order to emphasize the value or worth of the person
- Counterarguments would say that saying “with autism” seems to suggest that it is determinantal to value/worth as a person

# UNC TEACCH Autism Program

- Established in 1965 by the University of North Carolina School of Medicine.
- State established as a system of regional centers in 1972. Currently includes 7 outpatient clinics.
- Part of the UNC Health Care System and the North Carolina AHEC Program.



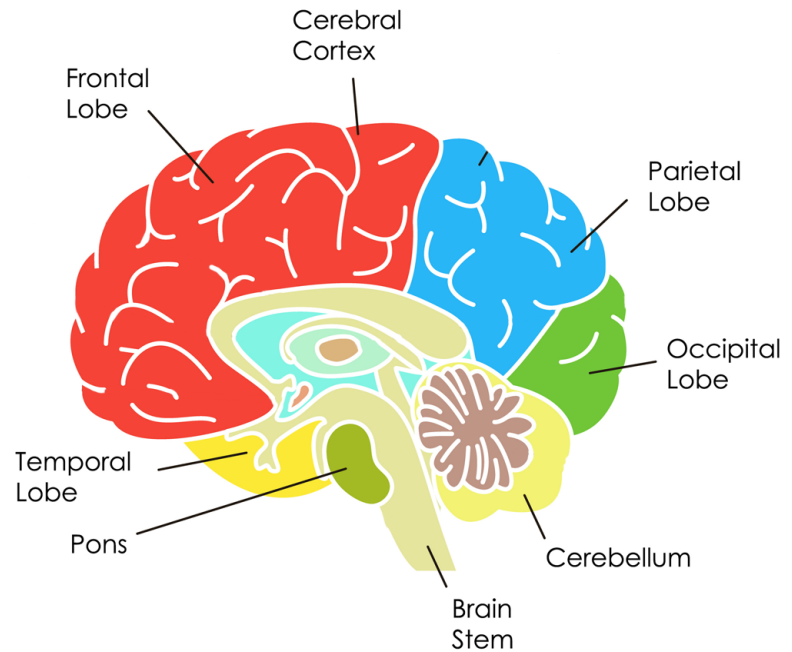
# TEACCH Mission Statement



The University of North Carolina TEACCH Autism Program **creates and disseminates** community-based services, **training** programs, and **research** to enhance the quality of life for autistic individuals and their families across the lifespan.

# Autism Spectrum Disorder

- Neurodevelopmental disorder – brain organized and functions differently
- Starts early in life but the presentation of symptoms may be delayed



*Image ©iStock, used with permission*

# University of North Carolina TEACCH Autism Program

## Learning Styles in Autism



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# CDC Prevalence Data from the ADDM Network

- 2.8% of 8-year-old children in the US, *Increase from 2.3% (1 in 44) in 2018*
- 4% of boys and 1% of girls aged 8 years
- 49% evaluated by age 36 months; median age of diagnosis 49 months
- Black and Latine children are diagnosed, on average, 6 months to 2 years later



Autism and Developmental Disabilities Monitoring Network  
Maenner et al., 2023

# My Autism By George

- What are some of George's strengths?
- What are some of George's symptoms of autism?



# DSM-5: Autism Spectrum Disorder

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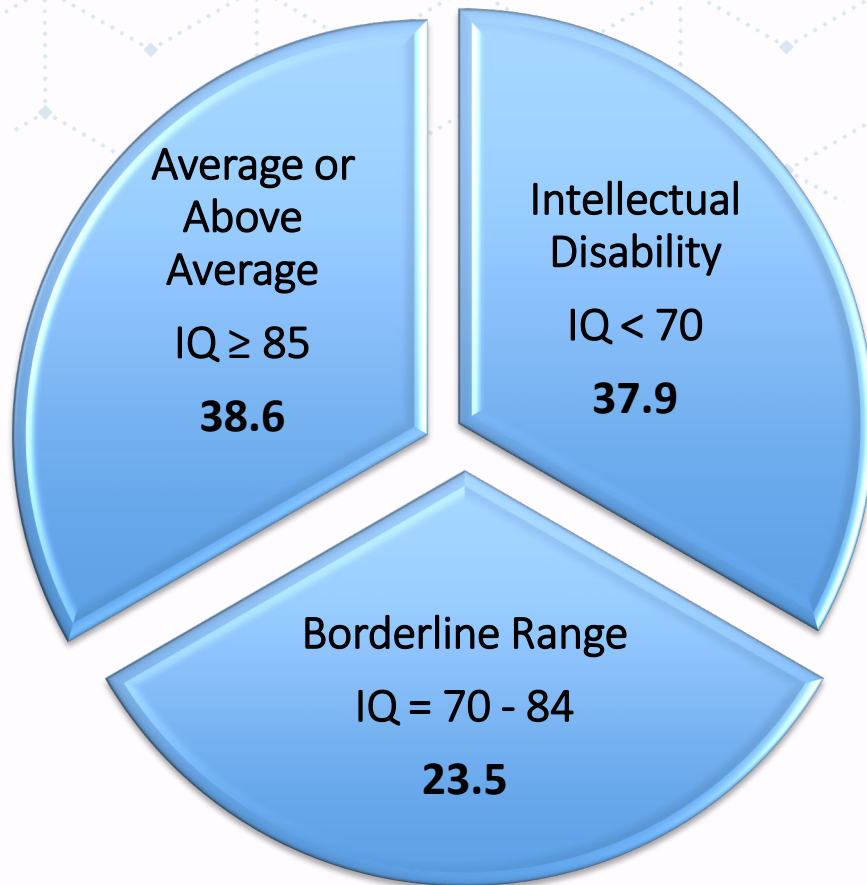
## **Social Communication**

- Deficits in social-emotional reciprocity
- Deficits in nonverbal communicative behaviors
- Deficits in developing and maintaining relationships

## **Restricted, Repetitive Patterns of Behavior, Interests, or Activities**

- Stereotyped or repetitive speech, movements, or objects
- Excessive adherence to routines, ritualized verbal or nonverbal behavior
- Highly restricted, fixated interests (intensity or focus)
- Hyper- or hypo-reactivity to sensory aspects of environment

# Intellectual Ability of Individuals Diagnosed with Autism



- Decrease from 50% with an intellectual disability in the 2002 cohort.

*Autism and Developmental Disabilities Monitoring Network  
Maenner et al., 2023*

Mild Autism Spectrum Symptoms  
Mild Social Difficulties  
Minimal Affect Adaptation  
Flexibility

Restricted and  
Repetitive Behavior  
More Flexible

Impaired Cognitive Skills  
IQ: Intellectual Disability  
Lack of verbal skills

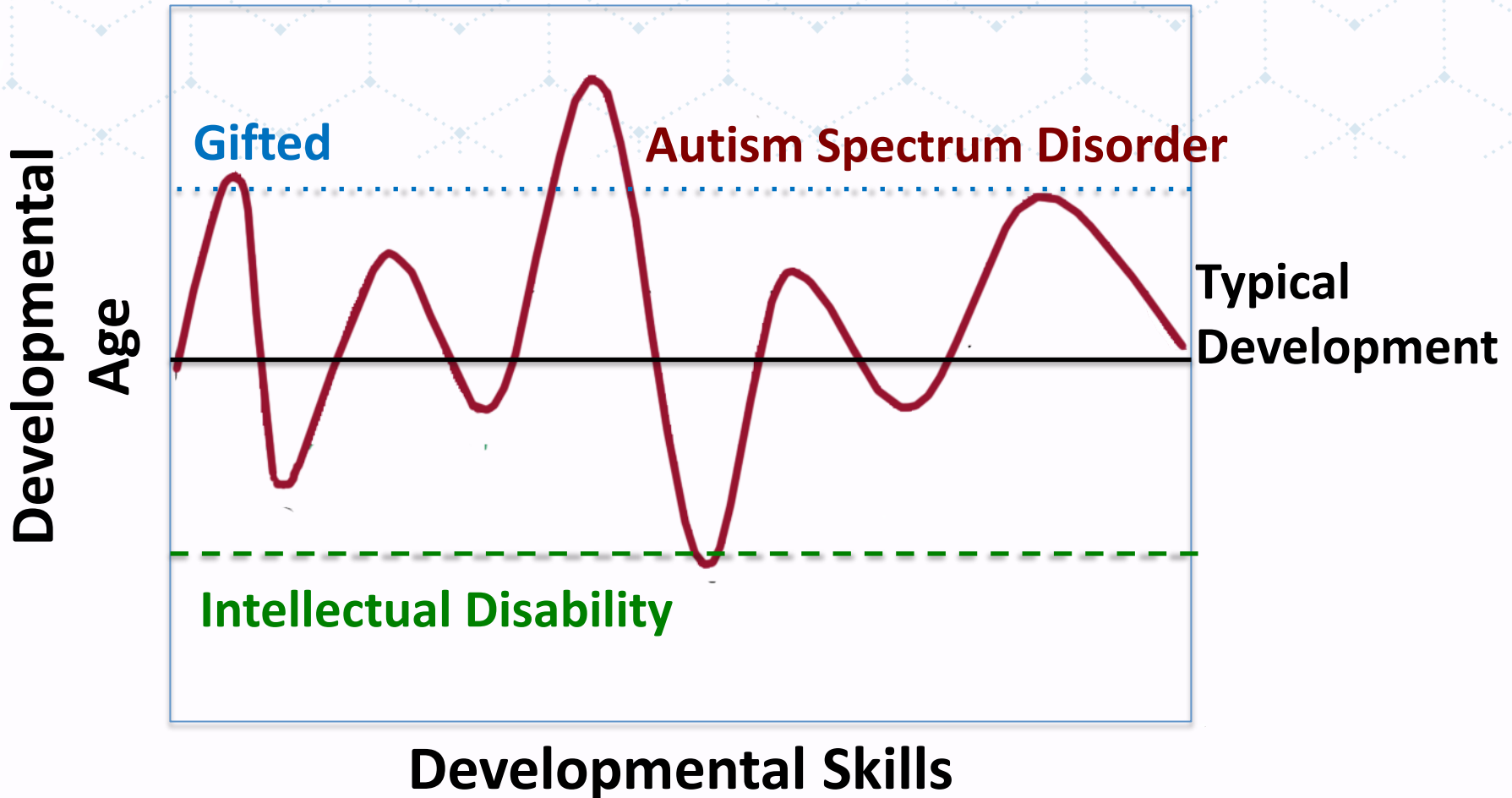
Intact Cognitive Skills  
IQ: Average or Above  
Verbal

Restricted and  
Repetitive Behavior  
Extreme Rigidity

Severe Autism Spectrum Symptoms  
Social Difficulties  
Severe Affect Adaptation  
Rigidity

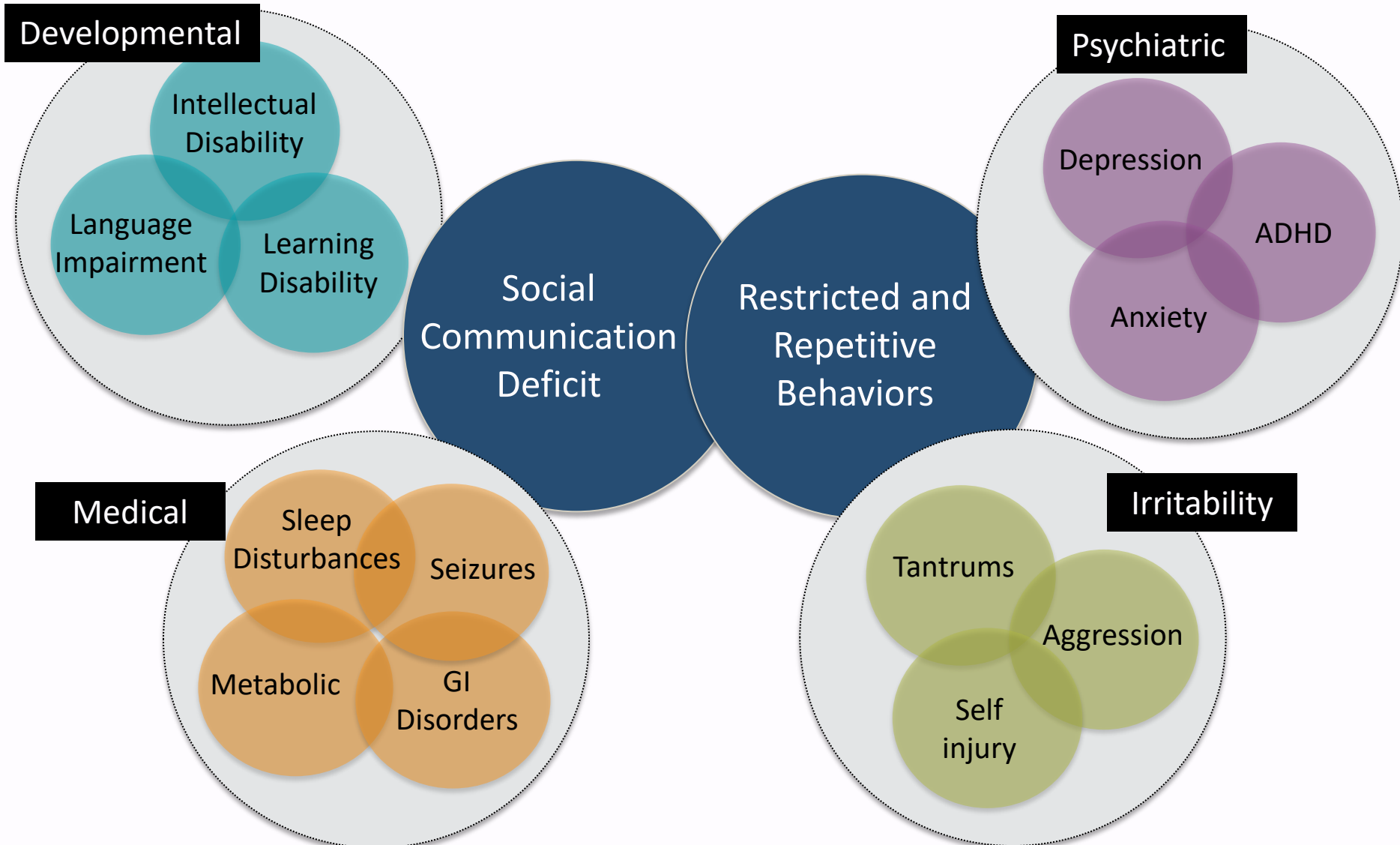
From CARS Second  
Edition Manual 2010

# Uneven Patterns of Development




# DSM-5: Core Symptoms & Associated Conditions

- Core Clinical Features
- Associate Conditions



Klinger, Dawson, Barnes, Crisler (2014)

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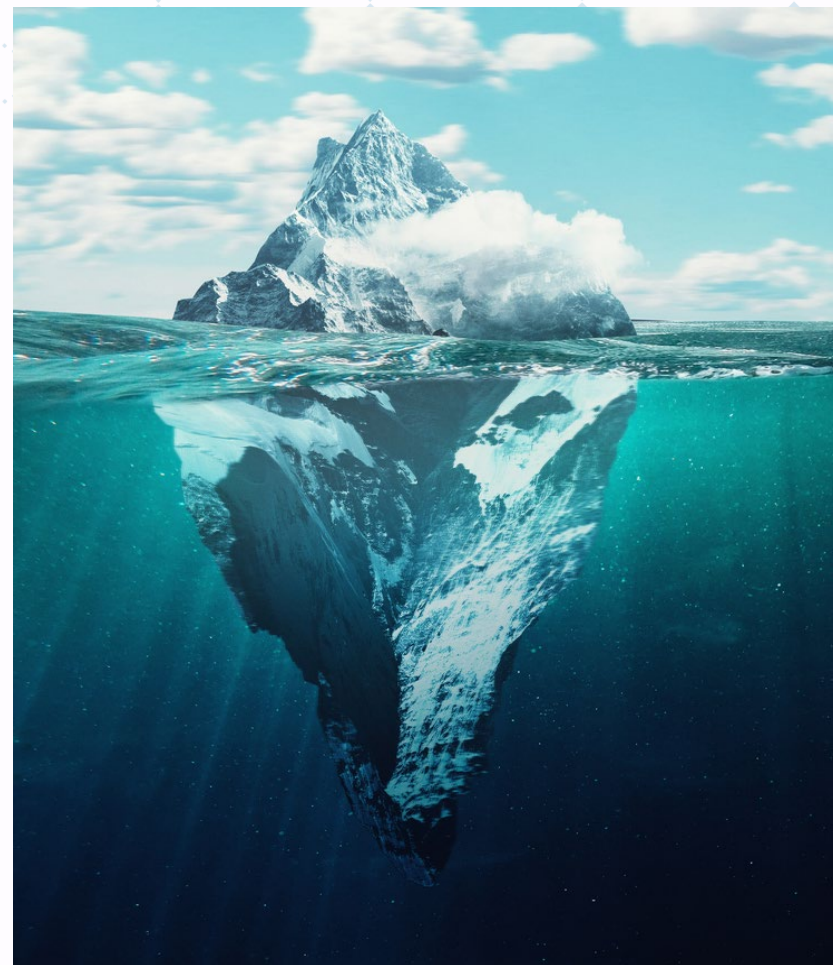
“Once you have met one person with autism,  
you’ve met one person with autism”

- *attributed to many, including Stephen Shore*



# Implications for Understanding Autism

- Individuals with autism learn differently
- Their learning differences can create unique strengths and challenges
- Neurodiversity view focuses on valuing strengths and supporting challenges



# Learning Styles of Autism

- Implicit learning
- Auditory processing
- Attention
- Executive functioning
- Social cognition



# Learning Styles: Implicit Learning

**Explicit Learning**  
(rule-based learning)  
is a relative strength  
for individuals with  
autism

**Implicit Learning**  
(automatic learning)  
is a relative  
weakness

# Learning Styles: Difficulty Learning Things Automatically

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"Temple [Grandin] had longed for friends at school ...while they admired her intelligence, they never accepted her as part of their community. "I could never figure out what I was doing wrong. I had an odd lack of awareness that I was different. I could never figure out why I didn't fit in. Something was going on between the other kids, something swift, subtle, constantly changing - an exchange of meanings, a negotiation, a swiftness of understanding so remarkable that sometimes she wondered if they were all telepathic."

- *Oliver Sacks writing about  
Temple Grandin*

# Learning Styles: Implicit Learning

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## Difficulty with Generalization

- Trouble exhibiting the same skill across people, places and materials
- Knowing what to do based on prior learning or experiences

# Learning Style: Implicit Learning

## IMPLICATION FOR INTERVENTION

- Use **direct (explicit) instruction** to teach skills and to clarify what “to do”
  - Use **specific language**
  - Use **visual supports** to teach new skills
- Teach the use of visual strategies that **support generalization**
  - Use visual reminders to implement routine strategies
- Create narratives to **explain the “hidden” rules of social expectations.**

# Learning Styles: Auditory Processing

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- Strength in visual processing
- Difficulty with abstract language (concrete or literal thinking)
- Delayed processing of language



# Auditory Processing: Temple Grandin

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“I think in pictures. Words are like a second language to me. I translate both spoken and written words into full-color movies, complete with sound, which run like a VCR tape in my head. When someone speaks to me, his words are instantly translated into pictures.”

*Thinking in Pictures*





# Concrete or Literal Thinking

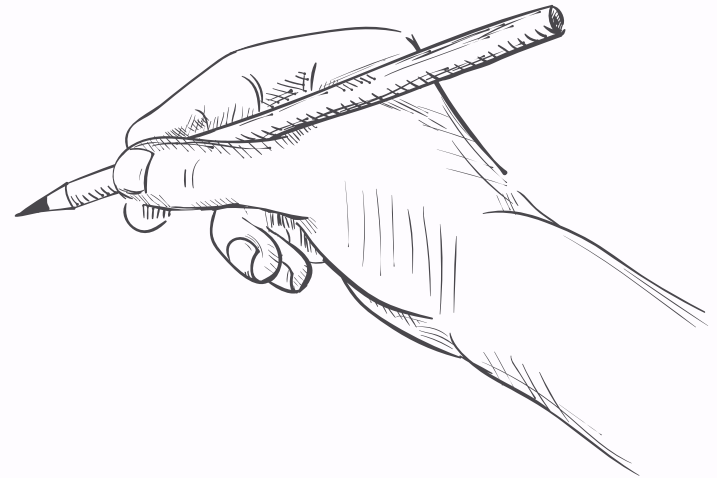
- “Behave” – one word, many meanings



# Concrete or Literal Thinking

- Take a moment and draw this direction:

“clean up”



**Chat:** Once you’ve finished, describe your drawing in 3-5 words.

# Learning Styles: Auditory Processing

## IMPLICATION FOR TEACHING AND INTERVENTION

- Use **gestures**, meaningful **concrete examples**, and **visual instructions/supports**
- **Allow time to process** information and formulate a response

*If you cannot draw it,  
it might be too abstract!*



# Learning Styles: Attention

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- Sticky Attention (Central Coherence)
  - Problems seeing the neurotypical “big picture”
    - Strength in focusing on details and facts
    - Difficulty determining relevant vs. non-relevant
  - Difficulty disengaging and shifting





# Chat



# Learning Styles: Attention

## IMPLICATION FOR INTERVENTION

- Organize and segment the environment to **engage and maintain attention**
- Use visual structure to **direct attention** to important and relevant information
- Use visual supports to **enhance meaning** and understanding of abstract concepts
- Use a variety of visual cues to help **disengage and shift attention**
- Incorporate **special interests** to engage attention

# Learning Styles: Executive Functioning

- Weak organizational skills
- Sequencing / planning
- Trouble with initiation
- Understanding “finished”
- Set shifting / flexibility
  - Difficulty with transitions



# Implications of These Learning Differences?

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Need predictability,  
Routines are predictable

But, routines can encourage rigidity,  
So.... **TEACH FLEXIBILITY!**



# Learning Styles: Executive Functioning

## IMPLICATION FOR INTERVENTION

- Provide **visual sequences** of activities
- Develop and teach **organizational strategies**
- Teach routine strategies for **self-monitoring**

# Learning Styles: Social Cognition

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- Joint attention
- Responding to emotions of others
- Theory of Mind
  - Inability to understand others have perspectives that are different from one's own.



# Sally-Anne Test



Anne takes the marble out of the basket and puts it into the box.

Now Sally comes back.



She wants to play with the marble.

Where will Sally look for the marble?

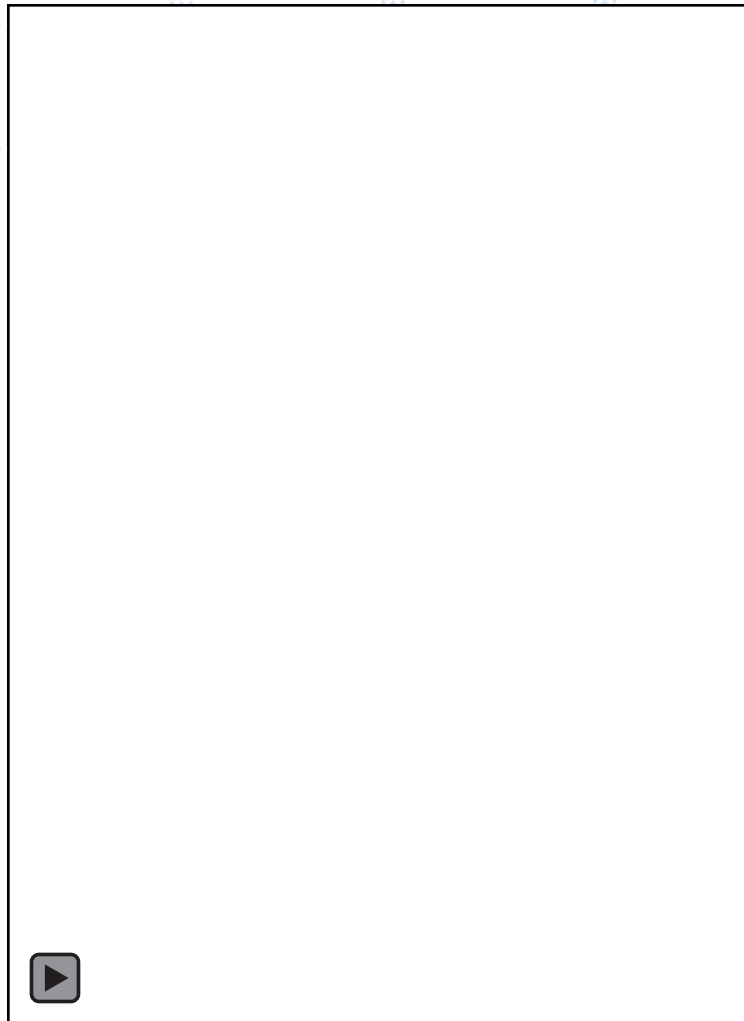
# Learning Styles: Social Cognition

## IMPLICATION FOR INTERVENTION

- Use visual cues to **support social understanding** and promote social interaction
  - Use social narratives to teach social understanding and clarify expectations
- Incorporate interests to **promote social engagement** and joint attention
- Directly teach about **emotions in self and others**

# Get Well Video

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# Poll



What learning style differences interfered with Luke's goal? Select all that apply.

- a) Implicit learning
- b) Auditory processing difficulties
- c) Differences in attention
- d) Executive function difficulties
- e) Social cognition

# Sensory Processing Impacts Learning

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- Problems filtering and modulating input
  - Hyper-reactivity (over-stimulated)
    - aversion, avoidance, over-aroused
  - Hypo-reactivity (under-stimulated)
    - Sensory seeking
    - May not notice sensory input
- Difficulty dealing with open space

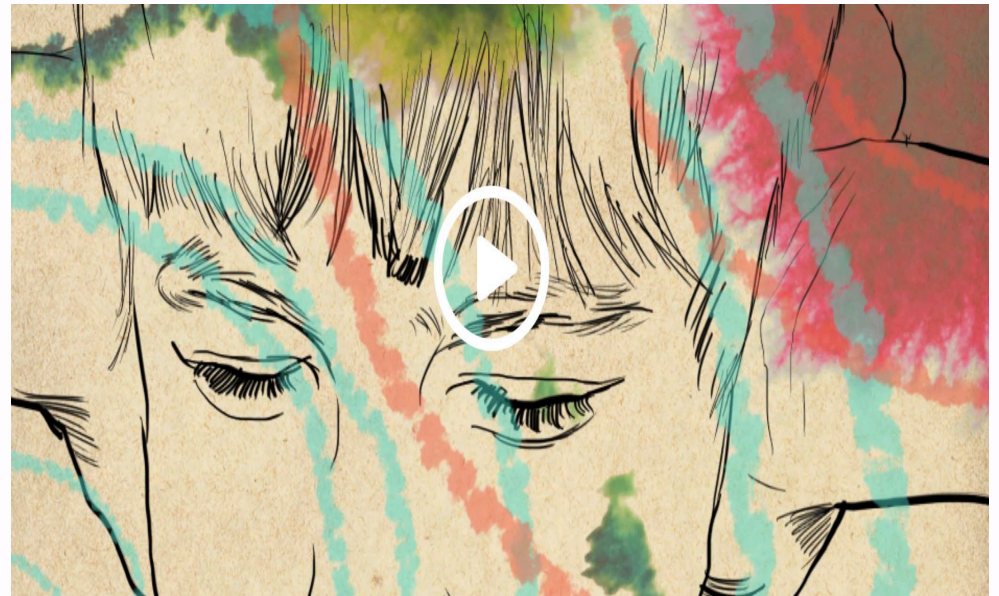




# Chat

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- What sensory input did he observe/experience?
- How did the waitress respond and was her response helpful?





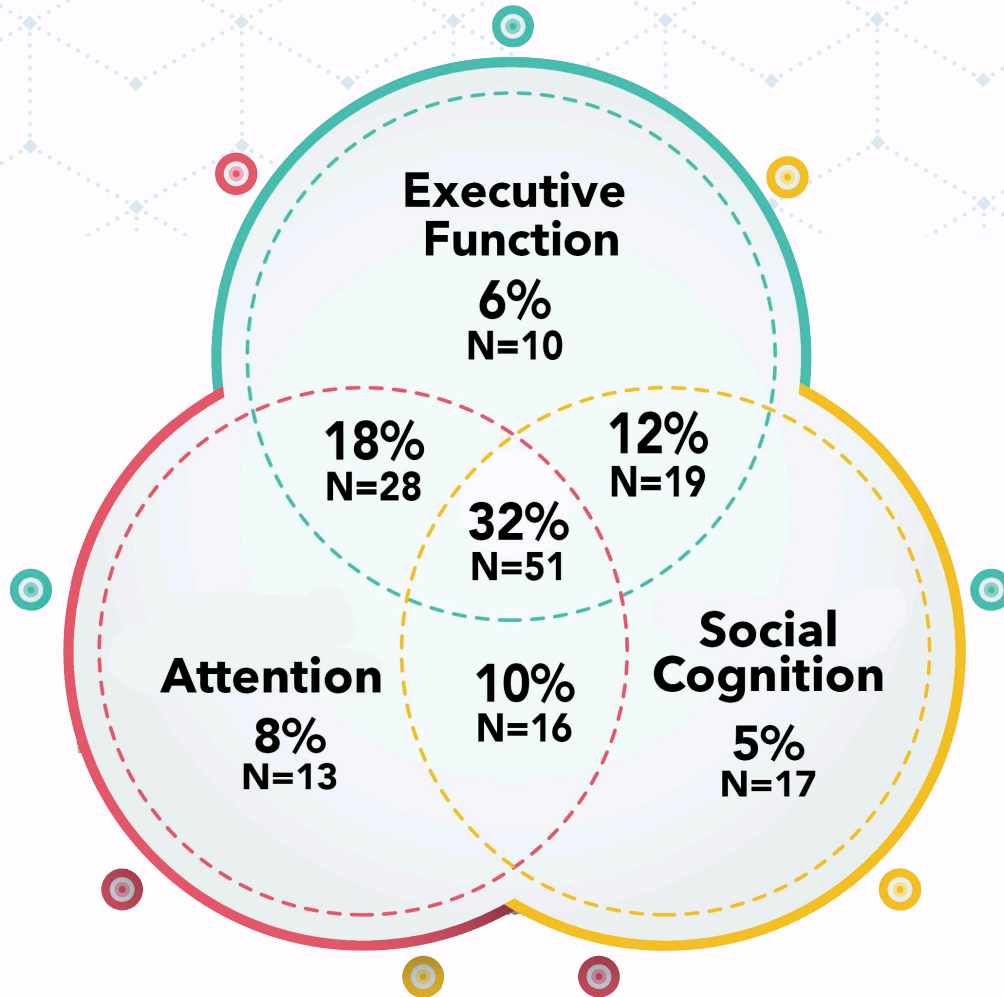
# Sensory Processing Impacts Learning

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## IMPLICATION FOR INTERVENTION

- Organize and segment the environment to decrease stimulation
- Ensure your client has access to calm and quiet spaces at school and at home
- Schedule breaks throughout the day

# Percentage of Adolescents with Autism with Atypical Cognitive Performance



## Atypical Performance:

All 3 areas: 32%

Two areas: 40%

One area: 19%

None: 9%

Francesca Happé research: Brunsdon et al. (2015)

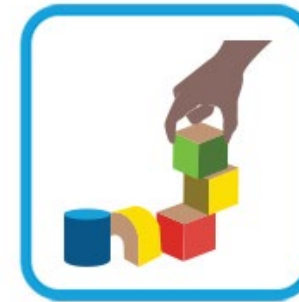
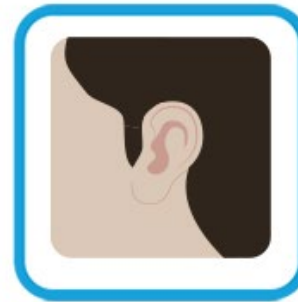
# Summary: Learning Styles in Autism

## Strengths

- Explicit learning
  - rules and routines
- Visual information
- Focus on details
- Restricted interests
  - increased motivation

## Weaknesses

- Intuitive (Implicit) learning
- Sticky attention
- Theory of Mind
- Executive functioning
  - planning, organization, & time management



# Young Sheldon Video

- Refer to the Learning Styles in Autism Checklist.
  - What learning styles did you observe in the video?
  - Which of these learning styles could be a strength?



# Use Autism Iceberg to Interpret Challenging Behavior(s)...

## Challenging Behavior

## Autism

- Social Communication Difficulties
- Restricted or Repetitive Behaviors and Interests
- Sensory Processing
- Learning Styles:
  - Implicit learning (rule-based learner)
  - Auditory processing
  - Attention
  - Executive functioning
  - Social cognition

# Stay Connected



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