

TRI-STATE WEBINAR SERIES

Sensory 101: Understanding Sensory Differences

Presented by:

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Tri-State Autism Spectrum Disorder Webinar Series



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Polling Questions

- Questions will be asked throughout the webinar
- When the poll opens on your screen respond by clicking on or filling in your answer

What is your role?
What is your role?
 Administrator
 Parent/Family Member
 Related Service Professional
 Teacher
 Other

What state are you from?
What state are you from?
 Colorado
 Kansas
 Nebraska
 Other
 No Vote

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Presenter Information



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Learner Objectives

- The participant will become familiar with the various sensory systems.
- The participant will be able to understand types of sensory differences.
- The participant will identify strategies that help with various sensory differences.



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Presentation Summary

This webinar will provide an overview of sensory systems and how differences manifest. Participants will learn common terminology, which will allow them to understand and discuss sensory differences when working with students, teachers, administrators and parents. Sensory supports and strategies within the school and home environments will also be highlighted.



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OUR SENSES

Let's review

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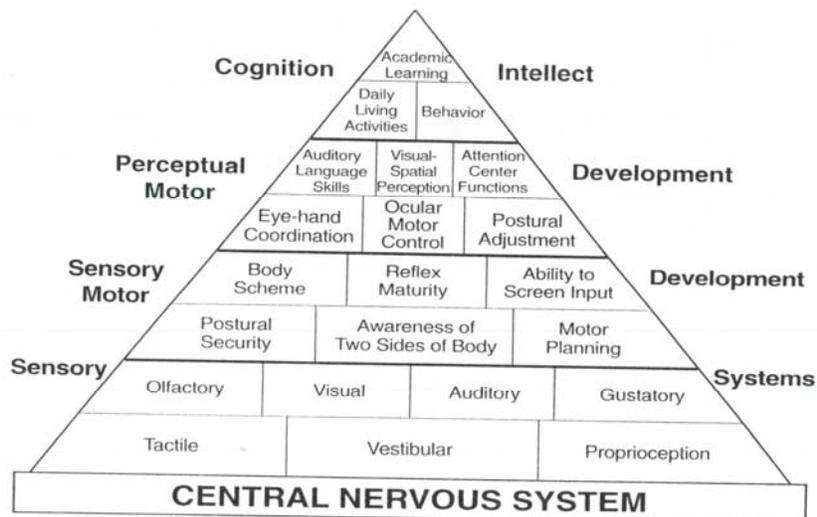


Figure 1-3. Printed with permission.

© Taylor/Trott 1991

1-4 "How does your engine run?"



Why is this important?

- The way an individual processes and responds to sensation has an impact on their daily life activities and activity choices. (Zuckerman, 1994, & Dunn, 1997)
- Atypical sensory processing refers to both hyper and hypo reactivity to sensation.
- Poor or atypical sensory processing abilities have been associated with problems in social participation and behavioral self-regulation, as well as learning, leisure, and occupational activities. (Dunn, 2001)



8 Sensory Systems

"FAR SENSES"-Environmental Senses

- ❑ Sight-Visual
- ❑ Hearing-Auditory
- ❑ Taste-Gustatory
- ❑ Smell-Olfactory
- ❑ Touch-Tactile 2 types:
 - ❑ defense (protect from danger)
 - ❑ exploration (learning and discrimination)



Sight/Visual System

- ❑ This system deals with acuity and perception.
- ❑ These may be seen in children with visual challenges:
 - ❑ Head Tilt
 - ❑ Squinting
 - ❑ Red/watery eyes
 - ❑ Fixation
 - ❑ Decreased Attention to task
 - ❑ Flicking toys or hands in front of eyes
 - ❑ Looking at objects out of the corner of the eyes



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Hearing/Auditory

- ❑ This system is responsible for hearing acuity.
- ❑ Children with an altered auditory system may:
 - ❑ Be hyper-sensitive to sound.
 - ❑ Be hypo-responsive to sound.
 - ❑ Have an inability to filter background noise.
 - ❑ Appear stressed in noisy environments
 - ❑ Appear withdrawn in noisy environments



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Taste/Gustatory

- ❑ This system works closely with smell.
- ❑ Some children with taste/gustatory challenges may:
 - ❑ Object to certain textures or temperatures of food.
 - ❑ Gag at the sight or taste of certain foods.
 - ❑ Prefer to lick or smell foods prior to eating them.
 - ❑ Lick or taste inedible objects.
 - ❑ Prefer high sensory-value food (chips, salsa, candy, pop)



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Smell/Olfactory

- ❑ This system helps to establish and revive memories.
- ❑ Works very closely with taste.
- ❑ Some children with smell differences may:
 - ❑ Object to odors that other children would not notice.
 - ❑ Sniff food, people, and objects.



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Tactile

- The tactile sense provides information, primarily through our skin, about the texture, shape and size of objects in the environment. It helps us distinguish between threatening and non-threatening touch sensations.
- Function:
 - Protective: to alert the organism
 - Discriminative: to give information about the environment when the body makes contact with it



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“NEAR SENSES”-Body Centered Senses

- Vestibular
- Proprioceptive
- Interoception



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Vestibular

- The vestibular sense provides information through the inner ear about gravity and space, about balance and movement, and about our head and body position in relation to the surface of the earth.

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Proprioceptive

- The proprioceptive sense provides information through our joints, muscles, ligaments, and deep in our skin about where our body parts are and what they are doing.

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An 8th Sensory System: Interoception

- ❑ Interoception provides us with feedback from our body's organs.
- ❑ It refers to the awareness of our body's internal signals.
- ❑ Helps us answer the question, "How am I doing?"
- ❑ This system is responsible for telling us when we feel hungry or tired.



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Sensory Integration

- ❑ Sensory Integration is a theory of brain-behavior relationships
- ❑ The term "Sensory Integration" was developed by A. Jean Ayres PhD, OTR



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Active Student Responding

A student that swings every day at recess enjoys the following sensory input:

- A. Vestibular
- B. Proprioception
- C. Interoception
- D. Tactile



Active Student Responding

A student that swings every day at recess enjoys the following sensory input:

- A. **Vestibular**
- B. Proprioception
- C. Interoception
- D. Tactile



OBSERVING SENSORY RESPONSES

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Sensory Processing Disorder “SPD”

- ❑ SPD is sometimes called “Sensory Integrative Dysfunction” (or SID).
- ❑ SPD is the inability to respond appropriately to ordinary experiences. It occurs when the brain processes sensations inefficiently.
- ❑ Since we cannot see inside the brain, we rely on behavioral responses to indicate how a person is responding to sensory information.

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Behavior

- Because we are looking at RESPONSES to sensory input, we are also talking about behavior.
- Remember, behavior is anything a person does that is observable and measurable.
- Almost everything that we do can be described as behavior.



Active Student Responding

If you see a student jumping up and down in the classroom, he probably is:

- A. Excited
- B. Trying to get an adults attention
- C. Obtaining proprioceptive input
- D. I need more information



Active Student Responding

If you see a student jumping up and down in the classroom, he probably is:

- A. Excited
- B. Trying to get an adults attention
- C. Obtaining proprioceptive input
- D. **I need more information**



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Analyzing the Behavior

Always a reason for behavior:

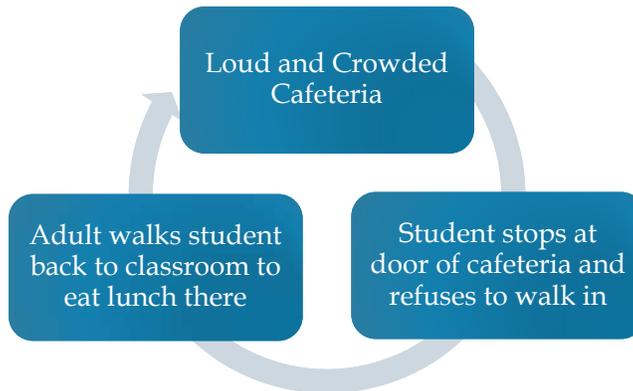


The ABCs

- Antecedent - what promoted the behavior immediately before the behavior
- Behavior - define and look for link: in response to same situation or occur in predictable pattern
- Consequence-what happened immediately after the behavior



A-B-C



When should we observe?

Motivation Assessment Scale
1986 V. Mark Durand, Ph.D.

Name _____ Rater _____
Date _____

Behavior Description

Setting Description

Instructions: The Motivation Assessment Scale is a questionnaire designed to identify those situations in which an individual is likely to behave in certain ways. From this information, more informed decisions can be made concerning the selection of appropriate reinforcers and treatments. To complete the MAS, select one behavior that is of particular interest. It is important that you identify the behavior very specifically. "Aggression", for example, is not as good a description as "hits his sister". Once you have specified the behavior to be rated, read each question carefully and circle the one number that best describes your observations of this behavior.

0=Never, 1=Almost Never, 2= seldom, 3=Half the Time, 4=Usually,
5=Almost Always, 6=Always

<https://sites.ualberta.ca/~vsledpy/EDPY%20497%20Educating%20Autism/MotivAssessScale.Durand.pdf>



MAS Scoring Rubric

| | Sensory | Escape | Attention | Tangible |
|---|------------|-------------|------------|-------------|
| 1. | 0 | 2. 3 | 3. 4 | 4. 3 |
| 5. | 1 | 6. 4 | 7. 5 | 8. 3 |
| 9. | 0 | 10. 4 | 11. 6 | 12. 2 |
| 13. | 1 | 14. 2 | 15. 5 | 16. 4 |
| Total Score = | 3 | 13 | 20 | 11 |
| Mean Score = <i>(divide the total score by 4)</i> | 0.5 | 3.25 | 5.0 | 2.75 |
| Relative Ranking <i>(high score to low score)</i> | 4 | 2 | 1 | 3 |

If there is a tie for the highest score or if the means of the top two categories are within **.25 to .50** points (and you have clearly specified the behaviour and setting), then both are considered as influences that may be causing the problem behaviour to continue.



Free checklists

- <https://www.sensorysmarts.com/StudentSPD.pdf>
- <https://www.spdstar.org/basic/symptoms-checklist>
- <http://www.spdparentzone.org/wp-content/uploads/2014/03/Sensory-Checklist.pdf>
- <http://www.sensory-processing-disorder.com/sensory-processing-disorder-checklist.html>



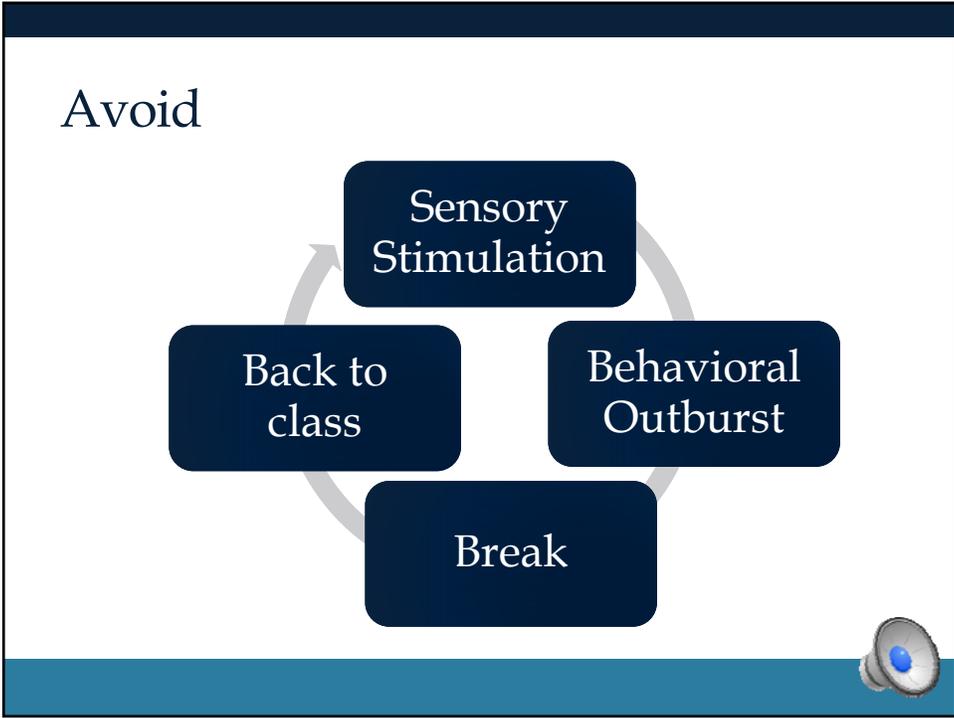
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Knowing the Difference

- ❑ Sensory processing disorders can be misconstrued as behavioral problems, inattention, distractibility, motor incoordination, hyperactivity, or emotional difficulties.
- ❑ If we only address the behavioral aspect of the problem, the base sensory problem will still exist.

(Murray-Slutsky & Paris, 2005)





SENSORY DIFFERENCES

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Sensory Processing Disorder Subtypes

Sensory Modulation Disorder

- Sensory Over-Responsive
- Sensory Under-Responsive
- Sensory Craving

<https://www.spdstar.org/basic/subtypes-of-spd#sensorymodulation>



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SENSORY OBTAINING

Under-responsive and craving responses



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Sensory Obtaining Behaviors

Child who is under-responsive will often display seeking or obtaining behaviors

- Tactile input: repeatedly touch and feel objects, bump into things, show little reaction to pain, shake hands, rub skin, pick skin, mouth objects
- Proprioceptive input: climbing, running, jumping, crashing, rough-housing, pinching, hitting, chewing, motor planning difficulties
- Auditory input: humming, whistling, vocal play, shrieking, grinding teeth, flicking/pulling ears
- Interoception input: Not enough input from their internal organs can result in not knowing when they have to use the toilet or register the sense of hunger or thirst.

<http://theinspiredtreehouse.com/what-is-interoception/>



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Intervention Principles -- Obtaining

- ❑ Sensory modulation difficulties in the areas of under-responsive and sensory seeking/craving will often be those behaviors that are identified as obtaining.
- ❑ Sometimes responses can be productive and acceptable. We don't need to change that response. We need to help others understand purpose.

(Murray-Slutsky & Paris, 2005)



Sensory Obtaining Strategies

- Use alerting, fast, irregular and intense input to increase arousal
- Use high intensity sensations to increase responsivity (light touch, varied movement, colors and patterns)
- Use taste, food textures and smells
- Find sensory activities that are motivating
- Use self and activities that invite child to want to participate (facial expression and affect)
- Use movement games with varied positions and quick changes in speed, direction and position (esp. anti-gravity)
- Proprioceptive 'prep' with a movement component



Practical Ideas for the Obtainer

- Time to "work the body"; trampoline, running, P.E., running purposeful errands (10-20 min. per 2 hours)
- "Wheelies" on shoes for transitions
- Fidgets for seat work; scented markers/pens
- Alerting gums and candies
- Arrhythmic music; headphones with music during study
- Stability ball, rocker chair, stand-up desk
- Allow standing or floor sitting during work tasks
- Consider study buddy to cue student to clues in environment



Practical Ideas-Obtainer (continued)

- Create organized movement experiences that are goal-directed and purposeful
- Use sensory and self-regulation programs that incorporate “heavy work” and purposeful tasks with deep proprioceptive components
- Use environmental modifications (artificial boundaries)
- Always have student participate in set-up and clean-up
- Enclosed or small spaces control activity
- Start and stop activities
- Sensory backpacks or Roos with fidgets and mouth tools
- Assign jobs---short but many (trash out, wipe board, etc.)



SENSORY AVOIDING

Over-responsive



Sensory Avoiding Behaviors

A child who is over-responsive will often display avoidance behaviors.

- ❑ Vestibular input: child may avoid playground activities, get car sick, move slowly for fear of falling even with no real threat.
- ❑ Tactile input: respond negatively to light or unexpected touch, may be picky about clothing, food, may crave deep touch/pressure, may hate haircuts, dentist, brushing teeth,
- ❑ walking barefoot or toe walking
- ❑ Auditory input: stressed in noisy environments, humming, singing, self-talk, head banging
- ❑ Multisensory input: easily overstimulated, overaroused: when bombarded by multiple senses



Intervention Principles-Avoiding

- ❑ Avoidance due to over-responsive sensory system
- ❑ Identify elements contributing to overload (sensory, environmental, schedule)

(Murray-Slutsky & Paris, 2005)



Sensory Avoiding Strategies

- ❑ Identify appropriate sensory-based activities effective in calming or organizing
 - ❑ Teach use of alternative activities for calming
 - ❑ Teach to I.D. warning signs of overload and use activities
 - ❑ Integrate calming sensory activities throughout the day
 - ❑ Teach to recognize and communicate feelings
- ❑ Systematically increase tolerance for and scope of new activities



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Practical Strategies- Avoider

- Have child administer sensation to self
- Gradually introduce new/different sensations
- “Heavy work” helps to calm over-arousal
- Predictability builds trust, never surprise a child with SOR; provide advance notice
- Avoid sensory events at times, but slowly expose child to these sensations when possible
- Structure environment and tasks to minimize over-reactions
- Use calming activities (deep touch pressure with engagement, proprioceptive input)



Practical Ideas for the Avoider

- Gentle stimulation or decreasing input
- Consider a “time in” place for regrouping that is not punitive (Henry’s Quiet and Buddy Spaces)
- Weighted or heavy backpack during hallway transitions
- Slow rhythmic music
- Resistance bands
- Wall push ups
- Aroma bracelet (lavender, chamomile, vanilla)
- Pressure garment under clothing
- Gum or resistance candy/foods
- Headphones (noise-cancelling), hat, sunglasses
- Buddy rather than group projects



Active Student Responding

You observed a student and discovered that he withdraws from touch. Your intervention strategy will be:

- A. Ask his peers to touch him during the day so he gets desensitized.
- B. Recommend parents sign him up for football.
- C. Teach advocacy skills.
- D. Use alerting, fast, irregular and intense input to increase arousal.



Active Student Responding

You observed a student and discovered that he withdraws from touch. Your intervention strategy will be:

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Conclusion

- Sensory responses are behaviors we need to better understand for appropriate intervention.
- Once we determine the function of the behavior is sensory in nature, we can better help the student cope with processing the information correctly or change the environment.
- There are a variety of strategies that can be used to help modulate a student's response to sensory information, once we determine if the function is an avoidance or obtaining behavior.



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THANK YOU!

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