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Dunn (1997) Model of Sensory Processing

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Dunn (1997) Model of Sensory Processing

- Based on a factor analysis of 1,037 SPs of typically developing children
- Factor analysis revealed need to focus on sensory processing patterns (e.g., sensory sensitivity, sensory seeking, etc.) instead of sensory modalities (e.g., visual, auditory, etc.)

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Dunn (1997) Model of Sensory Processing

- 4 quadrants at intersection of:

- Neurological threshold continuum

Low (sensitization)

High (habituation)



- Behavioral response/self-regulation continuum

Passive

Active



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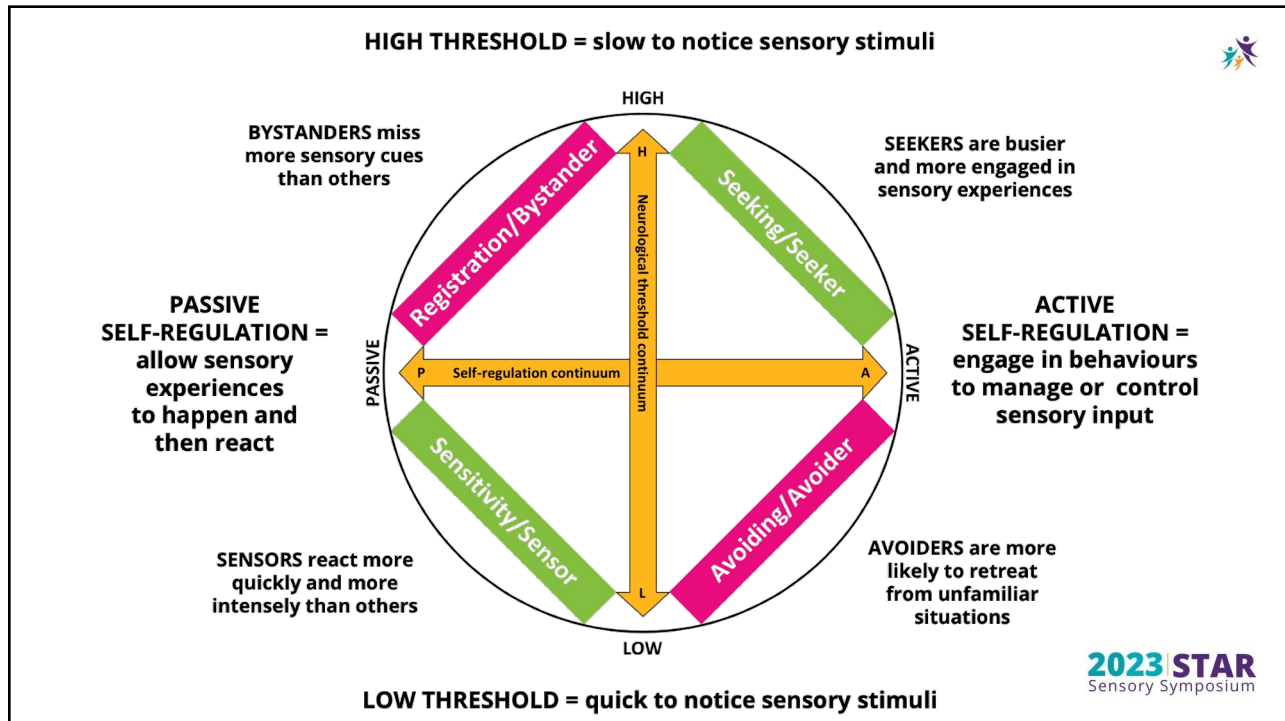
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4 quadrants of the Dunn model

1. Low threshold and passive response = Sensory Sensitivity
2. Low threshold and active response = Sensation Avoiding
3. High threshold and passive response = Low Registration
4. High threshold and active response = Sensation Seeking

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Assessments

- Sensory Profile – 2 (Dunn, 2014)
 - Infant Caregiver Questionnaire: Birth to 6 months
 - Toddler Caregiver Questionnaire: 7 to 35 months
 - Child Caregiver Questionnaire: 3 to 15 years
 - School Companion Teacher Questionnaire: 3 to 15 years
 - Short Form Caregiver Questionnaire: 3 to 15 years
- Adolescent / Adult Sensory Profile: 11 to older adult (Dunn, 2002)
- Sensory Profile Interoception: 11 to older adult (Dunn et al., 2022)

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Sensory Profile tool	Age	Who	What does it measure?	Length of administration
Infant Sensory Profile 2	0 to 6 months	Caregiver	Sensory processing preferences in daily life	30 minutes, at home or clinic
Toddler Sensory Profile 2	7 to 35 months	Caregiver	Sensory processing preferences in daily life	30 minutes at home or clinic
Short Sensory Profile 2	3 to 14 years	Caregiver	Sensory processing in daily life	10 minutes at home or in the clinic
School Companion 2	3 to 14 years	Teacher	Sensory processing preferences in daily life	30 minutes at school
Adolescent / Adult Sensory Profile	11 years and above	Self-report	Sensory processing preferences in daily life	30 minutes at home or clinic
Sensory Profile Interoception	11 years and above	Self-report	How interoception manifests in everyday life	30 minutes at home or clinic



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Intervention strategies

- Primary approach = Design environments that meet sensory processing preferences
 - Modify the occupation
- Example: Adult client at work



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Intervention strategies: Sensory sensitivity

- Improve organization of stimuli
- Eliminate extraneous or irrelevant stimuli
- Decrease intensity of available stimuli
 - Especially competing stimuli
- Example:
 - Working in a quiet space (e.g., turn off music, move to a quieter room)
 - Leverage client's attention to detail



Intervention strategies: Sensation avoiding

- Reduce amount and intensity of stimuli
- Increase predictability of and familiarity with stimuli
 - Establish predictable routines
- Provide quiet space person can access when needed
- Give control over exposure to stimuli
- Example:
 - Allow for breaks when needed & provide access to quiet break room
 - Ensure tasks do not present aversive stimuli (e.g., vacuum)

Intervention strategies: Low Registration

- Enhance relevant sensory stimuli
 - Increase intensity or amount of stimulus
- Reduce speed information is presented
- Use cues (e.g., signs, alarms)
- Reduce predictability or familiarity of stimuli (e.g., setting, cues)

- Example:
 - Checklists at work
 - Use visual or auditory cues to prompt a task response

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Intervention strategies: Sensation seeking

- Create opportunities to explore
- Create opportunities for person to generate desirable sensations
- Increase variability, intensity, unpredictability of stimuli
- Explore providing sensations to maintain arousal and focus

- Example:
 - Find work tasks that are high energy (e.g., heavy work, high social demand)
 - Provide breaks so person can move around and engage in higher energy activity

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References

Brown, C., & Dunn, W. (2002). *Adolescent / adult sensory profile: User's manual*. San Antonio, TX: Psychological Corporation.



Dunn, W. (1997). The impact of sensory processing abilities on the daily lives of young children and their families: A conceptual model. *Infants and Young Children, 9*(4), 23–35.

Dunn, W. (2014). *Sensory Profile-2 user's manual*. San Antonio, TX: Pearson

Dunn, W., Brown, C., Breitmeyer, A., & Salwei, A. (2022). Construct validity of the Sensory Profile Interoception Scale: Measuring sensory processing in everyday life. *Frontiers in Psychology, 13*, 872619.
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STAR Frame of Reference

Sensory Treatment and Research

Michele Parkins

MS OTR/L, IECMH- E
 Founder of the Sensory Emotional Engagement Model
 STAR Institute Faculty

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What is the goal of childhood?

- Cooperation?
- Academia?
- Learning what you need so you can live independently
- Surviving

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An essential challenge for parents and teachers (and it **is** a challenge): to celebrate kids who have the gumption to question what they're told and, indeed, to help them become reflective rebels. Instead, too many adults prefer the “child of least resistance.”

Alfie Kohn

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What is the goal of childhood?

- Becoming
- Agency
- Autonomy
- Self actualization

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What is the goal of childhood?


- Agency
- Autonomy
- Self & Community Actualization

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What is the goal of childhood?



Exploring my unique and boundless potential.



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What is the goal of childhood?



Becoming my favorite self.



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**That's our ultimate goal
for entering their shared world –
to help them be empathetic, creative,
logical, reflective individuals.**

~ Dr. Stanley Greenspan

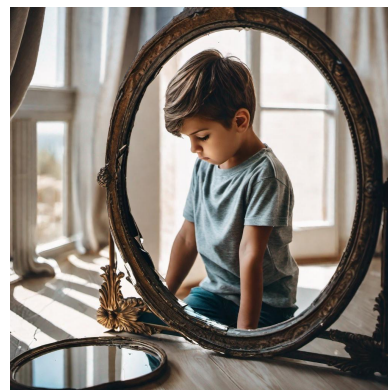
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“It is a tall order to understand how an individual experiences the world and puts all the pieces together to form a sense of self, engage in relationships, and meet the psychosocial and intellectual challenges of each stage of life.”

The Clinical Interview of the Child,
Greenspan, S.I.




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A. Regulation is foundational to development
B. Relationships drive human development
C. The sensory integration process organizes development

The diagram consists of three blue circles arranged in a triangle. The top circle is labeled 'Regulation'. The bottom-left circle is labeled 'Sensory Processing'. The bottom-right circle is labeled 'Relationships'. Double-headed arrows connect 'Regulation' to 'Sensory Processing', 'Regulation' to 'Relationships', and 'Sensory Processing' to 'Relationships', indicating a bidirectional relationship between all three components.



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The sensory integration process organizes development.



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Sensory Integration

- We must be able to integrate sensations and react to those sensations in a meaningful way in order to develop, function and relate.

Smith-Roley, S., Imperatore Blanche, E., & Schaaf, R. C. (2001). Understanding the Nature of Sensory Integration with Diverse Populations. Austin, Texas: Pro-ed.

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What is the goal of sensory integration therapy?

- The adaptive response.
- Participation in occupational roles:
 - In childhood: development of effective emotion regulation, social skills, play skills, and fine motor and gross motor skills; attending to tasks, performing coordinated motor actions, planning and sequencing novel tasks, developing social relationships, managing classroom demands, performing self-care tasks, and participating in family activities.
 - As we mature: engaging in occupational roles we value, such as care of self and others, engagement with people and objects, and participation in social contexts.

SI Fact Sheet 2, AOTA, Frequently Asked Questions About Ayres Sensory Integration®

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What is the goal of sensory integration therapy?



- Function and participation
- Realization of potential
- Goal oriented behaviors
- Self-regulation
- Self-directed/self-organized behaviors
- Enjoying other people and perspective taking
- Positive, harmonious social relationships
- Psychological well-being / 'fully functioning' / 'flourishing'
- *The self organized child*



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Brain, body, nervous system

- Important to remember that a person is a 'unit' and that the brain regions, body systems and subsystems of the nervous system all operate in unison
- This is one reason why we refer to 'integration' as an outcome of our work
- When we learn about component parts of the system remember that there are innumerable transactions, multidirectional relationships and influences that occur each second.



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Recipe for Brain Change

Experiences that involve:

- Regulation
- Integration
- Motivation
- Joy or Pleasure
- Novelty & Intensity
- Repetition
- Connection and Engagement

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**"There is no
development
without
relationships."
Jack Shonkoff**



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Relationships drive development.

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How do you feel?



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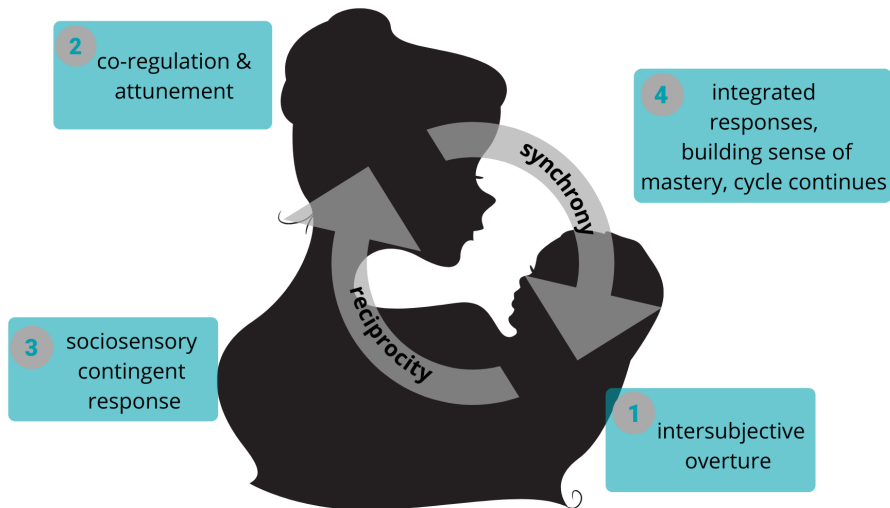
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IN THE FIRST YEAR OF LIFE
THERE ARE AS MANY AS
15,536,000 MICRO SECOND BY
SECOND EXCHANGES OF AN
ADULT AND THE AWAKE
INFANT (Tronick).



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Serve and
Return
Interactions –
*a kind of
neural wifi*



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Interruptions to service

Sensory processing differences have the potential to:

- Scramble the message
- Change the sound quality
- Only transmit part of the message
- Cut off signals all together
- Add extra data that is confusing



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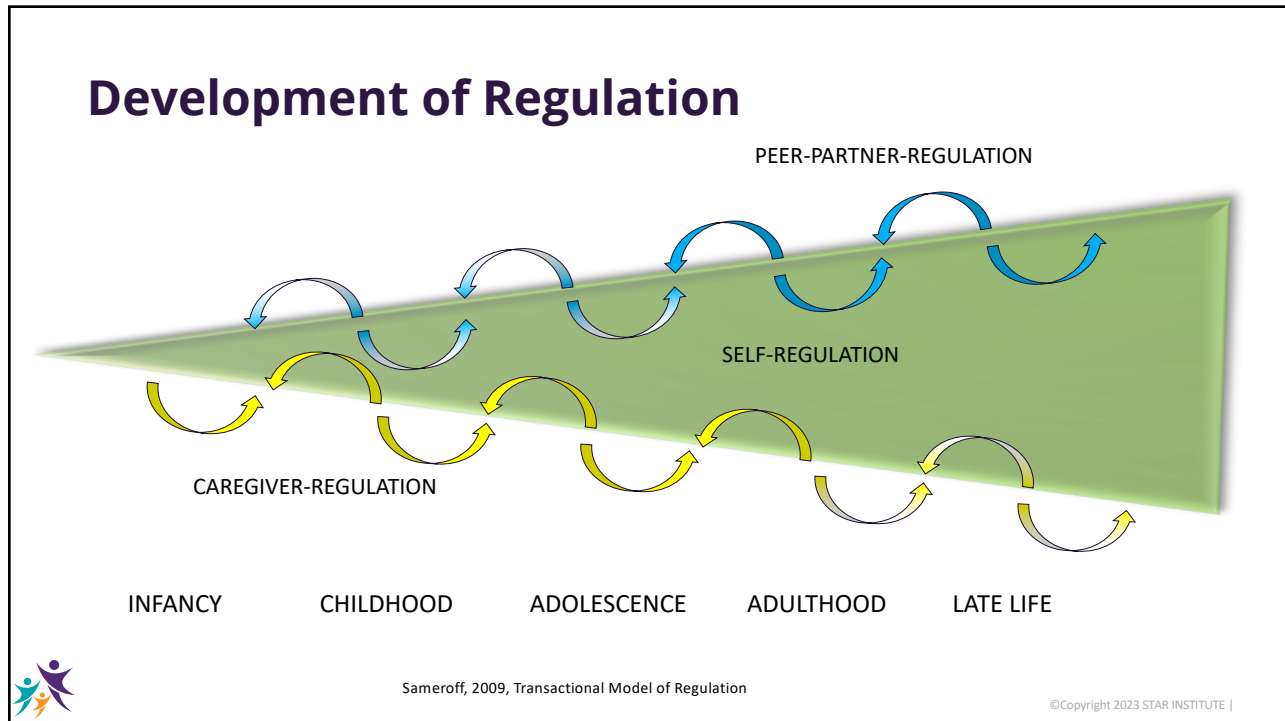
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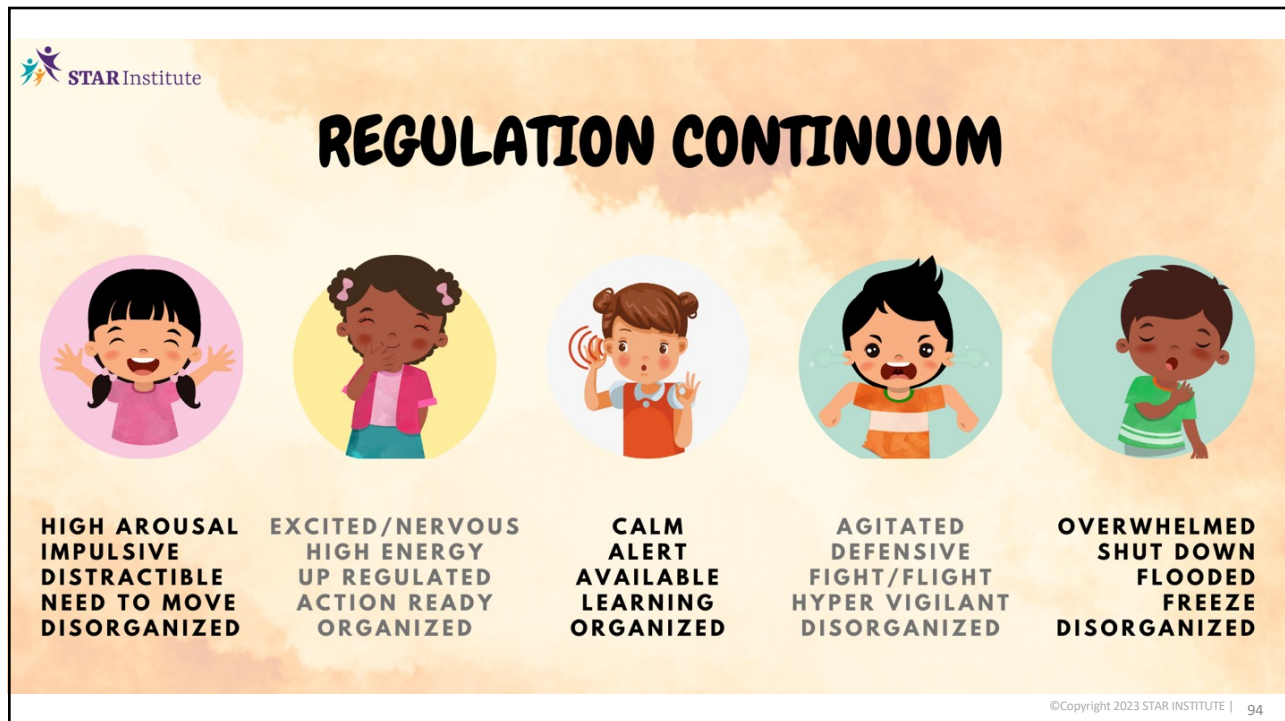
Regulation is foundational to development.

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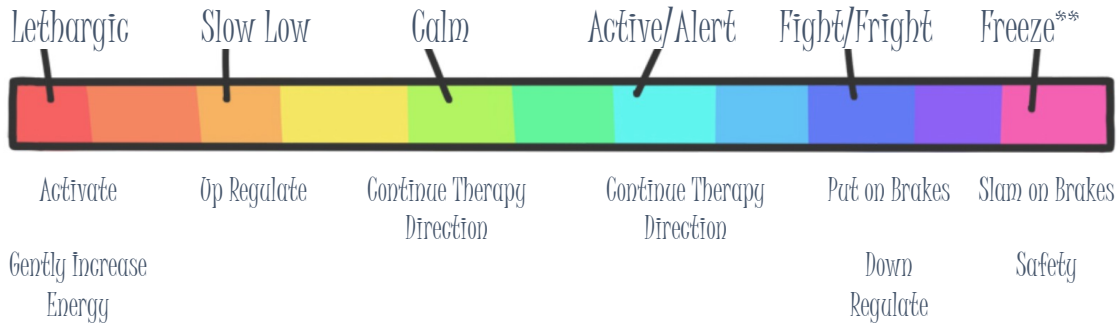


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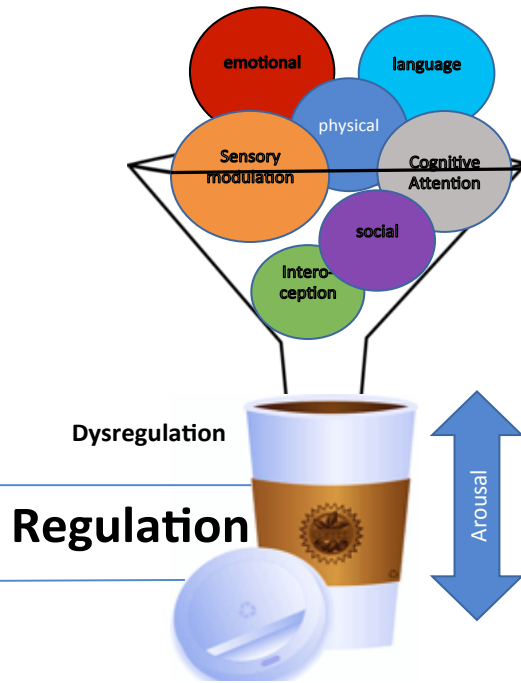
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Regulation Continuum



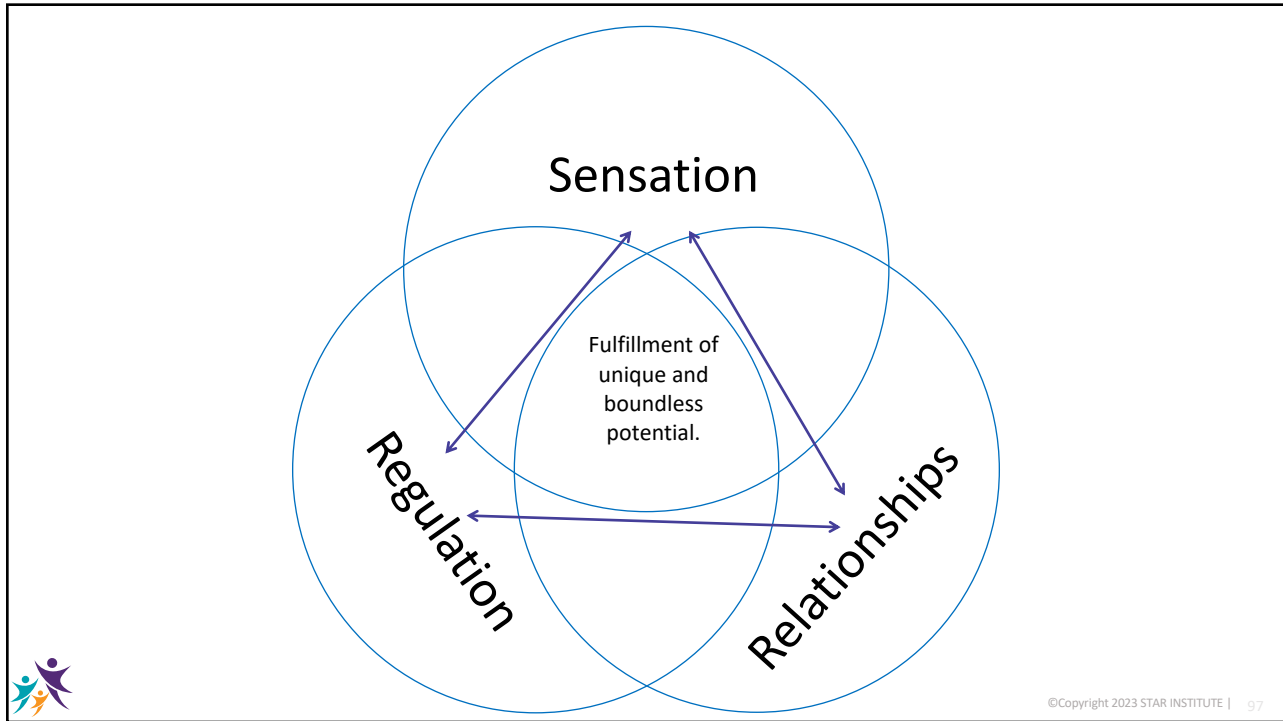
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