

Fostering Family Partnerships: An Intro to the Neurorelational Framework (NRF)



How do we translate “what matters” in early brain development to a comprehensive assessment & intervention process for infants and parents?

What Matters:

- Stress Resilience versus Toxic Stress
- “Serve & return” levels of high quality engagement
- Healthy development of brain networks and circuits

What assessment information to obtain (3 steps to NRF):

- **Step 1:** Assess & intervene to improve stress and stress recovery patterns in child and parent
- **Step 2:** Assess & intervene to improve the level(s) in the quality of engagement in relationships
- **Step 3:** Assess & intervene to improve individual sources of vulnerability (triggers) & resilience (toolkits) in brain networks

Possible Regulation and Stress Response Correlates of Interpersonal Modes Across the Lifecycle

Annual Risk and Resilience	Just Right Self-Regulation Flexibly with flexibility	Not Fully Resilient High Demand	Not Over-Regulated High Demand	Not High-Regulated High Compliance or Control
STRESS RESPONSE	<ul style="list-style-type: none"> • Healthy stress response (resilient) • Clear perception of threat • Appropriate level of arousal • Appropriate to situation 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused
REGULATORY EXPRESSION	<ul style="list-style-type: none"> • Clear perception of threat • Appropriate level of arousal • Appropriate to situation 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused
STATE OF MIND	<ul style="list-style-type: none"> • Healthy and resilient • Clear perception of threat • Appropriate level of arousal • Appropriate to situation 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused
SOFT SKILLS, POSITIVE, AND RESILIENT	<ul style="list-style-type: none"> • Healthy and resilient • Clear perception of threat • Appropriate level of arousal • Appropriate to situation 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused
ANNUAL AND RISK	<ul style="list-style-type: none"> • Healthy and resilient • Clear perception of threat • Appropriate level of arousal • Appropriate to situation 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused 	<ul style="list-style-type: none"> • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused • Overly sensitive to threat • Overly aroused

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Reading Non-Verbal Cues:
Red Zone

A Baby's Flooded State:

The image block for the Red Zone contains a purple header with the text 'Reading Non-Verbal Cues: Red Zone'. Below the header is the text 'A Baby's Flooded State:'. To the right of the text is a diagram of a human brain with red and blue highlights. Below the text and diagram are two side-by-side photographs of babies crying intensely. The first photo shows a baby with its mouth wide open and hands near its face. The second photo shows a baby with its mouth open and hands near its face, appearing to be in a state of distress.

Reading Non-Verbal Cues:
Blue Zone

A Baby's Shut-Down State

The image block for the Blue Zone contains a purple header with the text 'Reading Non-Verbal Cues: Blue Zone'. Below the header is the text 'A Baby's Shut-Down State:'. To the right of the text is a diagram of a human brain with blue and red highlights. Below the text and diagram are two side-by-side photographs of babies in a shut-down state. The first photo is a close-up of a baby's face with a flat expression. The second photo shows a baby lying down with a flat expression.

Reading Non-Verbal Cues:
Combo Zone

A Baby's Vigilant State:

The image block for the Combo Zone contains a purple header with the text 'Reading Non-Verbal Cues: Combo Zone'. Below the header is the text 'A Baby's Vigilant State:'. To the right of the text is a diagram of a human brain with red and blue highlights. Below the text and diagram are three side-by-side photographs of babies in a vigilant state. The first photo shows a baby with wide eyes and a slightly open mouth. The second photo shows a baby with wide eyes and a slightly open mouth. The third photo shows a baby with wide eyes and a slightly open mouth.

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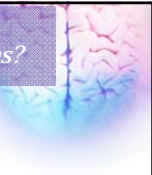
Step #1C:
How do we identify toxic stress patterns?

Recognize stress responses that are *too frequent, too quick / intense, too long*

4 Toxic Stress Patterns

1. *Over reactivity:* Stress responses that occur too frequently and too quickly
2. *Repeated reactivity:* Can't adapt to "normal" challenges and transitions
3. *Extended reactivity:* Prolonged stress responses that take too long to recover (more than 10 to 20 mins)
4. *Dampened recovery:* Can't recover from stress response back to baseline health (healthy sleep cycle, healthy awake state)

McEwen



Step #2 Quality of Relationships

"Serve and Return" on All Levels



© Can Stock Photo - 10090619



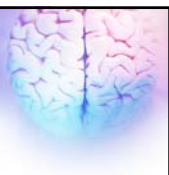
Step Two: Levels of Relationship

Bottom-up, Inside the Emotional House

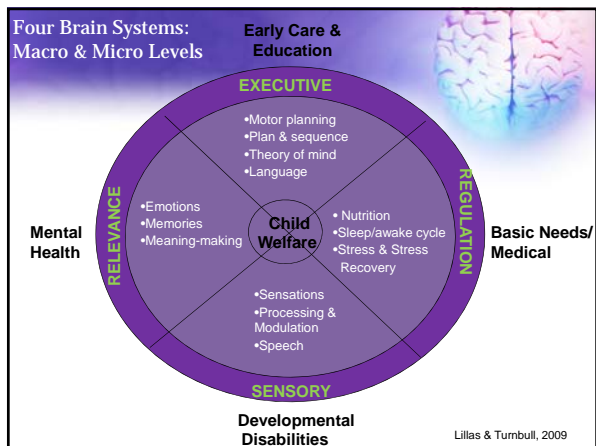
- Level 1: Getting to green zone together
- Level 2: Sharing eyes and faces together
- Level 3: Sharing joy and falling in love
- Level 4: Creating circles back and forth
- Level 5: Reading non-verbal cues & gestures

Top-down, the Roof to the Emotional House

- Level 6: Sharing feelings through pretend play and talking
- Level 7: Able to make-sense of feelings and solve problems together



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Macro Assessment Questions

- **Regulation System #1:** Does the infant, child, adult (parent) have a physical home and a medical home? Are there acute or chronic *medical issues* that need to be addressed?
- **Sensory System #2:** Does the infant, child, or adult (parent) show signs of any *developmental delays or disabilities* that requires further assessment or intervention?
- **Relevance System #3:** Does the infant, child, or adult (parent) show any signs of *relationship difficulties, trauma, or mental health* concerns that need to be addressed?
- **Executive System #4:** Does the infant, child, or adult (parent) evidence any *motor* coordination problems, *learning disabilities*, or problems with planning, sequencing, and *executing* meaningful plans, along with *problem-solving* skills, which point to educational and learning needs?

Functional behaviors representing brain systems

Lillas & Turnbull, © 2009

• Regulation	• States of Arousal
• Sensory	• Reactions to all sources of sensory information (including vestibular, proprioception, pain, temperature)
• Relevance	• Emotions, memories, & meanings
• Executive	• Ability to <i>initiate</i> and <i>shift</i> as well as <i>inhibit</i> and <i>sustain</i> motor (includes attention) activity and behavior according to the context

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Facilitate Stress Recovery

Identify Your Own Trigger Points



4. Thinking & Planning triggers




Thinking-Planning Triggers



Macro

- Any motor planning and output disabilities/delays, including apraxia
- Any Learning Disabilities combined with a Slower Processing Speed
- Any Language Disorders
- Any ADHD symptoms (too much flexibility)
- Any delays across multiple domains, such as with Autistic Spectrum Disorders (too much rigidity)
- Any cognitive rigidity (e.g., black & white thinking)



Executive branch is busy...



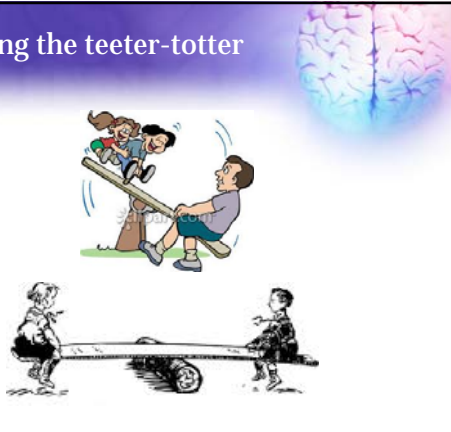
Air Traffic Controller



Juggling



Balancing the teeter-totter



The illustration shows a teeter-totter with a wooden beam and a central pivot. On the left side, a child is sitting on the beam, and another child is standing on the ground, pushing down on the beam. On the right side, a child is sitting on the beam, and another child is standing on the ground, pushing up on the beam. In the background, a large, glowing brain is visible.

Thinking-Planning Triggers



The icons include a green sign with 'WORK' and 'PLAY' written on it, a bunch of colorful balloons, and two elephants.

Micro

- Can you, your partner, your child balance spontaneous events with automatic routines up against the "big picture" and stay on target?
- Can you, your partner, and your child balance feelings with thoughts up against the "big picture"?
- Can you, your partner, and your child balance his/her own needs with other's needs up against the "big picture"?

Early on, even with infants, we look to see if there is a balance of spontaneous with automatic routines



- Can the baby engage with spontaneity?



- Can the baby engage with routines of feeding, bathing, sleeping, playing?



As children get older, from three to five years old...

- We begin to expect more...now, there is the potential capacity for pre-school aged children to be able to shift and to put the brakes on a bit more, and to begin to juggle!



Juggling Spontaneous Events with Automatic Routines



Balancing the Teeter-Totter
Where do you need help?

Are you naturally playful?



Are you naturally structured?



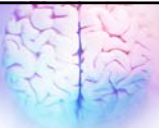


Who/what balances you out?



- Are you at-risk to choose to play instead of getting things done?
- Are you at-risk to choose to get the "next thing done" instead of playing with your family?

Juggling our Feelings with our Thoughts



Balancing the Teeter-Totter
Where do you need help?

Are you naturally oriented towards your feelings?

Are you naturally organized to think about things?

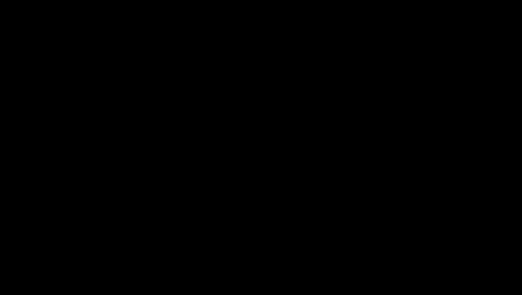
Who/what balances you out?

- Are you at-risk to choose to feel your way through something?
- Are you at-risk to think only about the facts in making a decision?



Toddler sharing his thoughts and feelings...

Listen, listen, listen to me! Linda, honey, just listen!



Juggling Our Own Needs with Other's Needs



The image shows a man in a dark suit and white shirt, looking upwards with his hands raised in a juggling motion. To his left is a large, glowing sphere with two arrows pointing in opposite directions: a red arrow pointing right labeled 'GIVE' and a blue arrow pointing left labeled 'RECEIVE'. In the top right corner of the slide, there is a glowing, stylized brain.

Balancing the Teeter-Totter

Where do you need help?

Are you naturally oriented towards other's needs?



- Are you at-risk to choose to give to others and not yourself?

Are you naturally organized to think about your own needs?



- Are you at-risk to take care of your own needs and not consider other's?

Who/what balances you out?




The slide features a glowing brain in the top right corner. The text is arranged in a teeter-totter format, with questions on the left and corresponding bullet points on the right. Small images illustrate each side of the balance.

Other contributions to the success of our thinking & planning skills

Time Travel, moving with ease between the...

Past Present Future



The diagram shows the word 'NOW' in large, colorful letters (N is red, O is yellow, W is blue) in the center. Below it, the word 'Past' is written in white inside a white circle on the left, and the word 'Future' is written in white inside a white circle on the right. The background is a dark, textured surface.

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Facilitate Stress Recovery
Identify Your Recovery Toolkits



4. Thinking/planning tools, resetting thinking/planning thresholds





Thinking/Planning Toolkits



Macro


- Physical therapy/occupational therapy
- Speech & Language Therapy
- If needed, an advocate to help you navigate Individualized Educational Plans
- Educational Therapy Support
- Tutoring support
- Medical support

Micro

- You have an "educational" home for any developmental delays and learning needs that require treatment
- You have educational support for your child or a community of family/friends to help you with the cognitive load
- You have someone helping you/your child learn new skills and practicing them with you/your child



Thinking/Planning Toolkits





Macro

- Anticipating problems at the "front-end"
 - Holding on to the Big Picture
- Learning new procedures for the "back-end"
 - Modeling
 - Collaborative problem-solving

Micro

- You are naturally good at juggling spontaneous "warm heart" events with steady "hand" routines
- You have external supports (e.g., computers, lists, relationships) in place to keep you organized
- You have a relationship that helps you anticipate big picture needs at the "front-end"
- You have internal "space" or a relationship that helps you process your thoughts and feelings; you can use blends of heart/head skills
- You have a step by step process to help you problem solve conflict at the "back-end"
- You keep a balance between meeting your own needs and meeting other's needs

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Catching Things at the Front End!


Ourselves, Our Partners, Our Children



UCB, C. Lillas, © 2014

Catching Things at the Back-End!

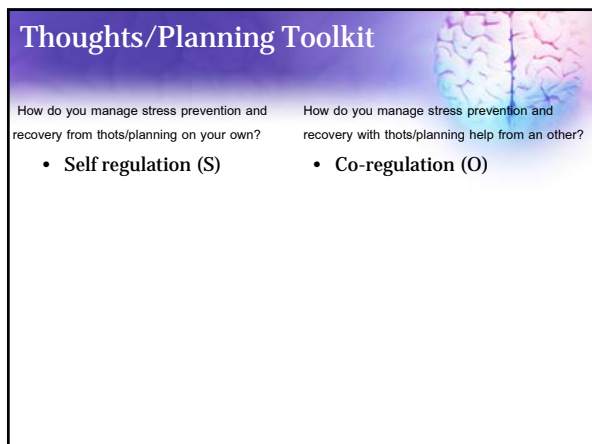
Ourselves, Our Partners, Our Children
"Old" versus Learning "New" Procedures



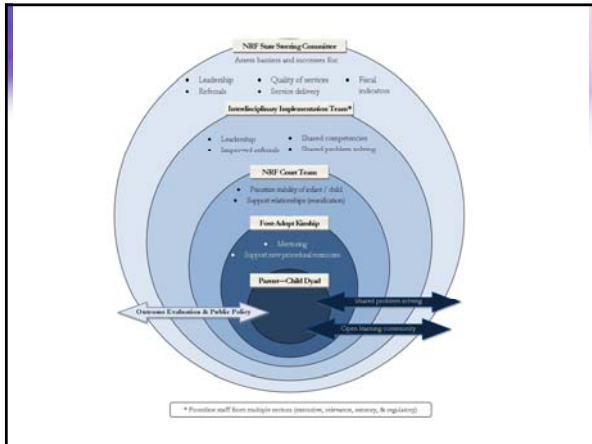
UCB, C. Lillas, © 2014

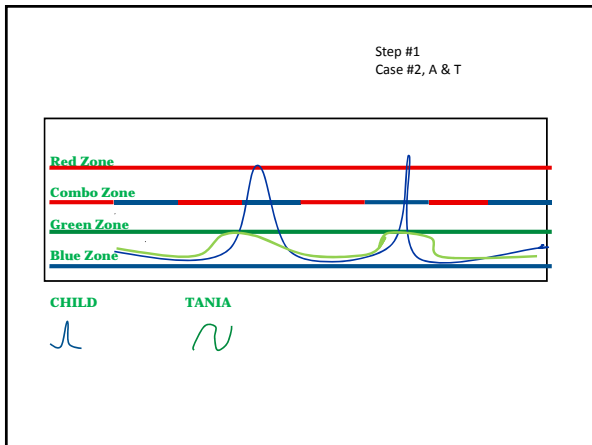
Thoughts/Planning Toolkit

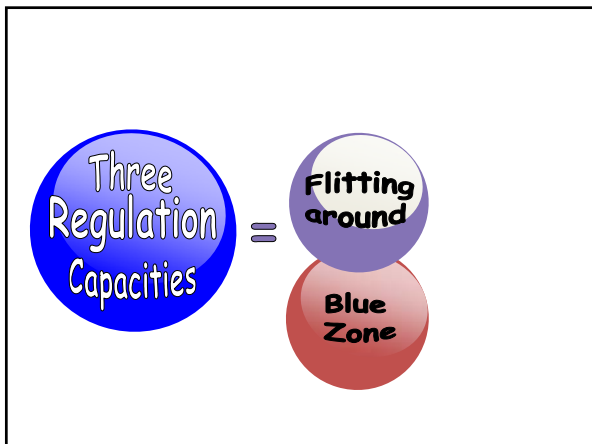
How do you manage stress prevention and recovery from thots/planning on your own?	How do you manage stress prevention and recovery with thots/planning help from an other?
<ul style="list-style-type: none">• Self regulation (S)	<ul style="list-style-type: none">• Co-regulation (O)



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What we are going to see...

- 3 video clips
 - Tania (teen mom) and Anthony in separate universes
 - Anthony moving from activity to activity, blue zone, motorically unstable
 - Six weeks, later, connecting and engaging together (at what level?)

Case #2

PARENT-CHILD RELATIONSHIP MILESTONES

Child: _____ Caregiver: _____ Examiner: _____ Date: _____ Diagnostic: _____

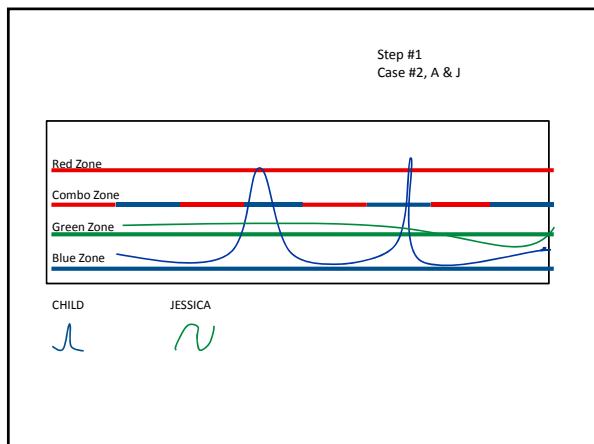
1	2	3	4	5	6
Age appropriate under all conditions, including stress, with a full range of emotions	Age appropriate but vulnerable to stress and/or constricted range of emotions	Has capacity but not at age appropriate level	Inconsistent/needs support and structure to function at this capacity	Barely evidences capacity even with support	Has not reached this level
Functional Capacities					
BOTTOM-UP					
11. Getting Calm Green					X
12. When calm, able to eye contact & look at	These functions are built upon the capacity to be calm together				
13. When making eye contact, able to share joy & feelings					X
14. When sharing joy, to create a continuous and forth flow of affection ("circles")					X
15. When in a flow, able to expand and root non-attached emotional & gestural					X
TOP-DOWN					
16. When reading cues, to share feelings with others through pretend play or by talking to					
17. When sharing joy, able to make sense solve problems together					

DBDP functions adapted from the DMDC, KCDL Press. Original Functional levels from K-10, Y-FERN, adapted language & arrangement by Connie Lillas

Shift to Grandma's

- Crises for Tania
- She shifts into unstable housing
- Moves from meeting all of the "demands" from both probation and family court to missing her appointments, not taking drug tests
- Ends up living in a crack house and unable to re-unify
- Reaches out to Jessica for help...

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What we are going to see...

2 video clips

- We begin again, a year later, similar to where we were a year before
- Anthony's blue zone disconnect; Jessica working hard with her "best" Buzz Lightyear voice to engage him

An Integrated Clinical Concept

Sensorimotor difficulties can manifest in Over-shooting and Under-shooting behaviors that result in problems with adjusting the *rate*, *rhythm* and *force* of behavior according to the context:

- *Rate of behavior* - the speed of how fast something happens over time

- *Rhythm of behavior* - how fast or slow things are repeated over time

- *Force of behavior* - intensity and strength in terms of how high or low


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Case #2

PARENT-CHILD RELATIONSHIP MILESTONES

Child: _____ Caregiver: _____ Examiner: _____ Date: _____ Diagnosis: _____

	1	2	3	4	5	6
Place an X in the box that describes the milestone and event levels	Age appropriate under all conditions, including stress, with a full range of emotions	Age appropriate but vulnerable to stress and/or constricted range of emotions	Has capacity but not at age appropriate level	Inconsistent/needs sensorimotor support and structure to function at this capacity	Barely evidences capacity even with support	Has not reached this level
Functional Capacities						
BOTTOM-UP						
11. Getting Calm (Green Together) (by 1 month)						X
These functions are built upon the capacity to be calm together						
12. When calm, able to re-engage & look at each other						X
13. When making eye contact, able to share joy & love the connection						X
14. When sharing joy, to create a continuous and forth flow of communication ("miracle")						X
15. When in a flow, able to read non-verbal cues and respond to them (by 18 to 24 months)						X
TOP-DOWN						
16. When reading cues, to share feelings with or through pretend play or by talking (by 24 to 36 months)						X
17. When sharing joy, able to make sense of problems together (by 48 months)						

DIR® Institute adapted from the DIR®, © DDI, Davis. Original functional levels from DIR®, © DDI, adapted language & organization by Connie Lillas

Cultural & Institutional Clash Crises

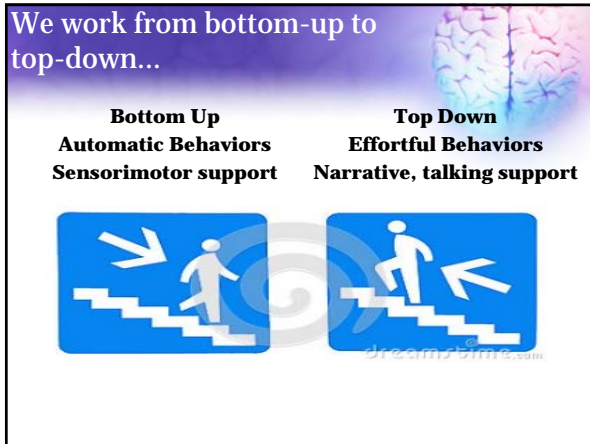
- Jessica's real concerns
- Grandma feeling blamed (she pretends she's so nice, but she's always causing trouble; he's fine at Margarita's)
- Jessica's anxiety to repair & anger at feeling falsely accused (using translator)
- Grandma's further detachment, wanting to fire Jessica
- Jessica's humiliation w/me (never not been able to repair a therapy relationship)
- Team unsure how to undo the grid lock

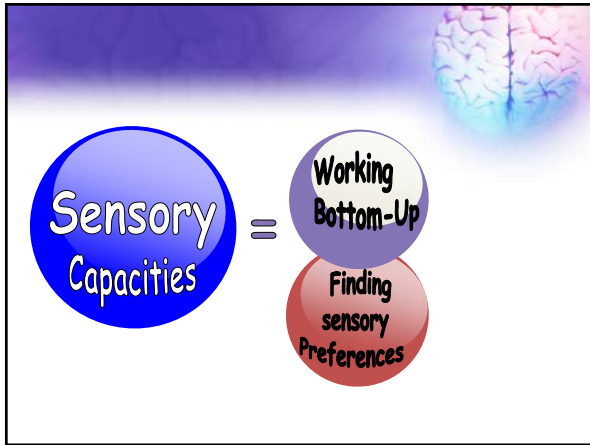
We hear Margarita is a relative

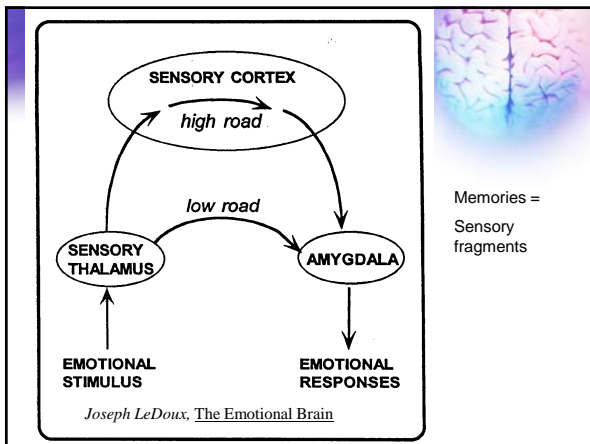
Heart, Hand, and Head Patterns

	Under Coordination		Under Stress	
Heart 1s	Warm Empathic Connect	Functional helper Share info. Make contact Cross-sector communication	Overly accommodating Overly controlling Anxious to fix things	Dysfunctional rescuing
Hand 2s	Assertive Directive, action oriented	Take the lead Confront Stand up Notice and share differences	Overly demanding Hostile attack	Blaming the victim Blaming the system
Head 3s	Neutral Reflective Problem-solve	Take responsibility Learn, ask, & notice the impact	Overly detached Overly dismissive Passive-aggressive anger Denial	Passive avoidance Antagonistic avoidance Denial of differences across domains

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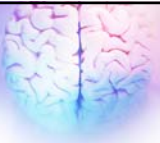




What we will see...


3 clips

- Working “bottom-up” we have to find a sensory preference to shift A’s arousal from blue to green zone
- By focusing on his getting sensorimotor input at the front end of a session, A’s more available
- What level of engagement is he shifting to now, in the last two clips? (which he can now sustain)


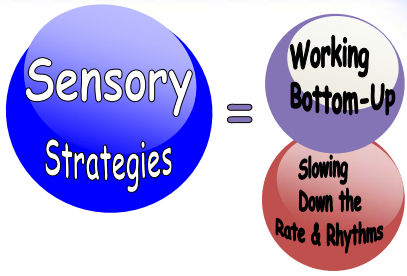


Speech Delay Crises

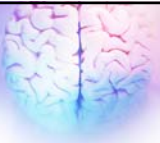
- At 3 years of age, only 5 words that were difficult to understand with much articulation
- He had had one year of twice a week speech at this point with little to no improvement
- His socio-emotional engagement was improving but his speech development was at a dangerous plateau



Sensory Strategies = Working Bottom-Up
Slowing Down the Rate & Rhythms



What we will see...




2 clips

- With all the improvement in engagement, we had not made enough language gains; by 3 years of age, only 5 words with articulation problems
- Added SLP expertise to shift to trans-disciplinary work
- With apraxia, over-talking noticed
- Shifted to under producing sounds & increasing gestures

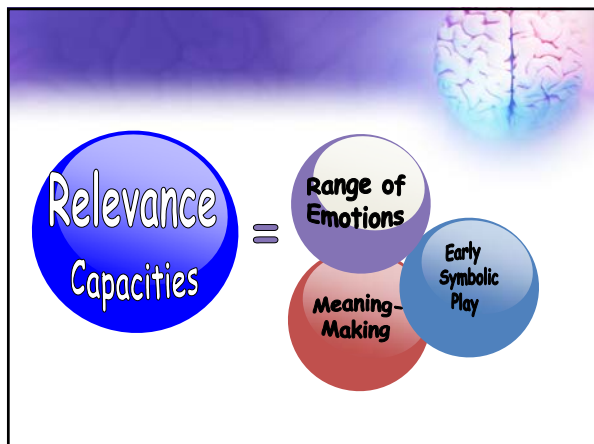


What we will see...



2 clips

- With all the improvement in engagement, we were still concerned about his sensorimotor synchronicity
- Added OT expertise to shift to trans-disciplinary work
- You see his poor core strength when on the therapy ball
- Improving core strength through crawling, bear crawling, and using arms to support trunk



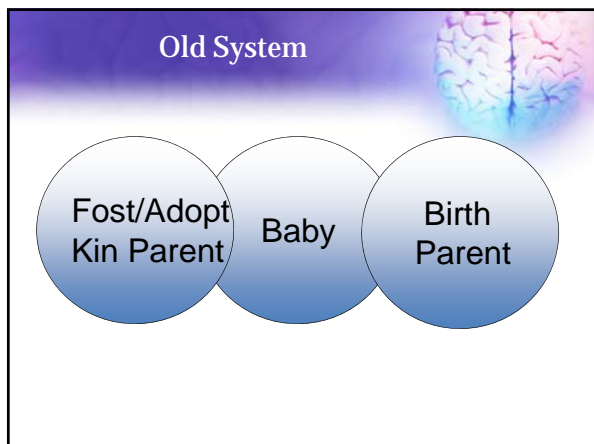
What we will see...

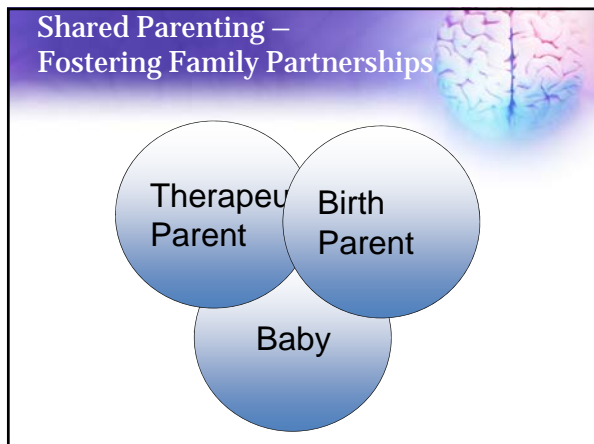
2 clips

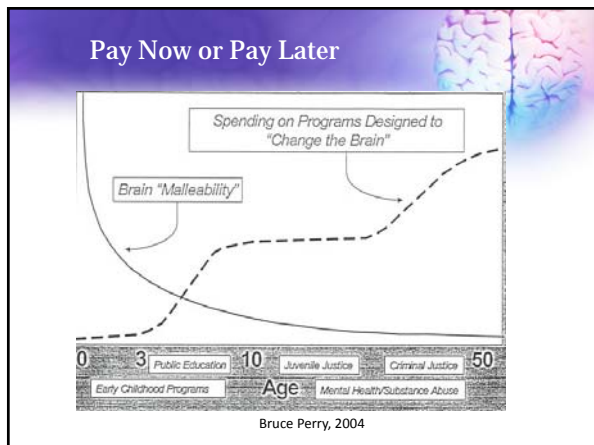
- Moving up the relational ladder to early symbolic play
- Theme of “help” & “kissing for thank you”
- Increase in language production, “I want in.”

- Gestural/emotional sensorimotor play with grandmother, who is adopting Anthony









Take Home Points

What To Look For:

- ☑ Toxic stress can be identified through non-verbal behaviors across the lifecycle and is especially important to be “seen” in birth to five year olds
 - Toxic stress can show up through red zone, blue zone, and/or combo zone behaviors that are too frequent or last too long
- ☑ Key red flags that indicate the need for “dyadic” (parent-child) intervention are:
 - Any toxic stress pattern
 - If the parent (e.g., birth/foster/kinship/adopt) cannot soothe his/her child
 - If the parent-child (e.g., birth/foster/kinship/adopt) cannot engage in joy

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