Infancy & Early Childhood Conference
Tacoma, Washington

Part 3
DIR®
Focus on the “I” of DIR

Presented by: Rosemary White, OTR/L
Date: April 3 & 4, 2017

DIR®/Floortime
MENTAL HEALTH & DIR®

Affective interactions
“R” part of the “I”
Development of relationships
- child/caregiver interactions,
- family patterns,
- child/peers
Emotional range,
Symbolic capacities,
Abstract thinking
Creativity relative to oneself & to others.

DIR®/Floortime
OT & DIR®

Neurobiological Factors:
• Sensory Processing – sensory discrimination, modulation & regulatory capacities, interconnectivity & perceptions
• Motor Control – muscle tone, righting & equilibrium, gross & fine motor skills
• Praxis Including motor planning & adaptation
• Visual Spatial Capacities - Ability to visually attend, share visual attention, assess visual figure-ground & integrate visual with other sensory stimuli
**DIR®/Floortime**

**COMMUNICATION & DIR®**

Communication depends on the capacity to:

- Share Attention
- Read & Use Gesture
- Use Vocalization
- Use Tone of Voice
- Use Language to Communicate

**DIR®/Floortime**

**FOUNDATION FOR COMMUNICATION & DIR®**

Capacity for Shared Attention & Engagement

- Share attention & respond to sound, & later, use gesture, tone of voice & verbal communication
- Engage in fun, playful, interpersonal interactions

Intentionality

- Show intent through gesture, vocalizations, words

Shared Meaning

- Understanding & creating new ideas & meanings

Comprehension

- Understanding the meanings of others

Production

- Use gestures, vocalizations, & later, words & language for communication

**DIR®/Floortime**

**EDUCATION & DIR®**

Brings DIR & the “lens” of all of the disciplines into the Education Setting & Every Learning Moment

- In the classroom
- In the lunch room
- In PE
- In Music
- At recess

&

Social Interactions Throughout the Day

We learn from the Interdisciplinary Team!!

Understanding the “I” from each member of the Interdisciplinary Team is essential to support everyone (parents/play partners & providers) to “tailor affective interactions” to engage to strengthen everyone’s developmental capacities in their relationships.

Pediatric PT & OT Services
The Offices of Rosemary White & Associates
We are Going to Begin by Thinking about “Synchrony of Sensory Processing”

Sensations are Connected in Meaningful Ways in Concert with the Emotional/Affective Tone of the child, the caregiver & the broader human environment

The Outcome of this is unique to Each individual’s experience.

THIS IS OUR “I” IN DIR

SENSORY SYSTEMS
The What & the Where….

◆ Auditory – sound
◆ Visual – vision
◆ Proprioceptive - muscles & joints,
◆ Tactile - sense of touch, the body’s ear,
◆ Vestibular - movement in space & relationship to gravity,
◆ Gustatory – taste
◆ Olfactory - smell
◆ Interoceptors – visceral sensations

The proximal/near senses dominate early in life & continue to exert influence in critical ways as the visual & auditory systems gain ascendancy.
The Journey – Receptor to Perception & Action

Every sensory receptor in the body has a threshold that leads to electrophysiological action,….

From the receptors of touch, proprioception, vestibular, auditory, olfactory, visual, auditory & interoceptors the electrophysiological action travels in dedicated sensory pathways to the spinal cord, or directly to the brainstem.

The Journey – Receptor to Perception & Action

ON THIS JOURNEY, BEFORE YOU ARE EVEN AWARE OF A SENSATION, ALL THE SENSORY SYSTEMS COMMUNICATE TO ONE ANOTHER…

Some sensory input does not go further than the brainstem, but the contribution of that sensory input is carried on to the cortex, by the same type of sensory system & by other systems in the pathways that enter the gateway to the cortex……

The Journey – Receptor to Perception & Action

ON THIS JOURNEY, BEFORE YOU ARE EVEN AWARE OF A SENSATION, ALL THE SENSORY SYSTEMS COMMUNICATE TO ONE ANOTHER…

As sensory input travels up the spinal cord touch & proprioception from receptors of one part of the body communicate with other touch & proprioception receptors, from other parts of the body gaining information about the body & the environment.

Touch & proprioception passes through the cerebellum, then to the vestibular nuclei (brain stem) communicating with the vestibular & the visual system. This communication is crucial to visual & motor function (body scheme, tone, balance, stabilizing the head & eyes during movement.)

The Journey - Receptor to Perception & Action

ON THIS JOURNEY, BEFORE YOU ARE EVEN AWARE OF A SENSATION, ALL THE SENSORY SYSTEMS COMMUNICATE TO ONE ANOTHER…

Auditory input comes from the right & left auditory receptors in the cochlear to the brainstem. Communication then supports the individual to detect where a sound has come from, the left or right side. There is also communication with the somatosensory system (touch & proprioception) that contributes to where to turn our head to find the source of the sound.

Visual input also communicates with the auditory & the somatosensory system in the brainstem influencing the co-ordination of posture & eye movements.
The Journey Continues
– Receptor to Perception & Action

ON THIS JOURNEY, BEFORE YOU ARE EVEN AWARE OF A SENSATION, ALL THE SENSORY SYSTEMS COMMUNICATE TO ONE ANOTHER…

■ When input goes to the sensory cortices the input reflects the communication/interconnectivity with other sensory systems that has occurred earlier …

■ In the cortex, after sensory input goes to its dedicated cortices, the information continues to communicate going to the limbic system & to sensory association areas & connects with other sensory input & with the more detail to the limbic system again…………

THIS PROCESS OF SENSORY COMMUNICATION, THE INTERCONNECTIVITY OF SENSORY INPUT OCCURS IN LESS THAN A MILLISECOND!!!!!!!

We Have to Consider
Both Proximal & Distal Sensory Processing
As well as Multisensory Processing………

Think about How all these Sensory Systems Communicate

The Steps of Sensory Processing:
• Uni-modal Perception (Auditory, Somatosensory, Visual, Olfactory, Vestibular)
• Multimodal Integration
• Attaching Meaning (Linguistic & Emotional)
• Creating Response
• Performing Response (Verbal/Motor)
Synchrony of Sensory Processing

- When reflecting on a child’s sensory processing you have to consider “is there harmony??”
- Does one sensory system lead & the other systems harmonize with it, or are present but in a resting state?
- Or is one, or more, sensory systems out of sync with other sensory input being a millisecond behind the other sensory systems?
- Does the child’s behavioral response reflect this lack of synchrony?
- Does the lack of synchrony contribute to anxiety?

Three Common Patterns

- Problems with Discrimination (Processing of sensations together)
- Problems with Modulation (Arousal & threshold)
- Sensory Based Motor Disorders (Body, Senses, Ideas & Action)
Narrow Range of Optimal Arousal

Optimal Level of Arousal

Behavioral Disorganization

Low Arousal

Wilbarger & Wilbarger, 1991

Sensory Events Over Time

An Individual's Response to Sensory Input from their own Body & from the Environment IS IMPORTANT in helping us Understand their Unique Profile....

Let's Consider Sensory Systems Rather than Individual Senses in the Context of Life & Dynamic Interactions

Sensory Processing & Interaction

- When there is an understanding of the relationship of the sensory systems & the arousal, attention, action of the child it inform caregivers how to tailor their “sensory affective inter-action” to enable those systems to join & harmonize with the leading sensory system.

- The conscious tailoring of sensory affective interaction in the course of treatment supports co-regulation, to develop a back & forth flow in the relationship & gives meaning to events.

Tailoring the Interaction....

- **Visual** - facial expression, move your body so that you are below the child’s body (lie on the floor, sit so that you are in the child’s line of vision); remain still to create a visual anchor, position 4-6 feet from the child; use physical body actions for child to observe, use body actions that also convey emotional intent. simple drawings to convey sequence of events &/or emotion ;

- **Auditory** - low frequency, high frequency, whisper, prosody & rhythm;

- **Gesture** - **Body Movement** – big movement, small movements, touch, point;

- **Sensorimotor** - Physical Movement in the Interaction – big movement, small movement, fast, slow, linear planes, side to side, rotation;

- **Touch** – firm touch, light touch; **Support Surface** – firm, soft, variable;
Tailoring the Interaction....

- **Pacing** - fast, slow, predictable or variable;
- **Rhythm & Timing** - The Dance... the speed of your actions, the timing of your actions; the sound of your voice; in order to share attention, anticipate, predict & respond;
- **Language** - simple words highlighting action; tone expecting a response; expressing your desires "I want", "I love", "I wonder"; clarification; language to clarify context; language to support comprehension; back & forth dialogue;
- **Emotional Tone** - matched, down regulating, up regulating, playful;
- **Emotional Range** - happy, excited, confused, fear, sad, anger, jealousy, anxious, competition;

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**DIR® Session Supporting Supporting Engagement with Rhythm & Timing**

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**Sensory Affective Inter-Action**

- Arousal -> Alerting
- Attention -> Anticipate
- Sensory-Affective Inter-Action
- Perception -> Action

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**Mom Giving Meaning to Actions**

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Profectum OT Work Group 2012
Giving Meaning to the Sensory Experience & Actions Supports the Relationship.....

Supporting Arousal -> Attention ->Action

“INDIVIDUAL PROFILE” SENSORY PROCESSING PROFILE
THE CHILD’S ABILITY TO PROCESS & SYNCHRONIZE THE INPUT FROM THEIR SENSORY SYSTEMS
IN THE FLOW AFFECTIVE INTERACTION
CONTRIBUTES TO HOW THE CHILD EXPERIENCES THE WORLD, INTERACTS WITH OTHERS & LEARNS.

Sensation-Affect-Regulation-Perception-Cognition
Inter-connectivity of the sensory experiences of ....
• Vision
• Sound,
• Touch & proprioception (muscle & joints)
• Vestibular (movement in space & related to gravity)
• Smell
• Interceptors

In Concert With.....
Affect & the Emotional Texture of the Interaction..... Supports meaningful & comprehensive perceptions, emotional memories & set the foundation for learning about oneself, others & the world around us.....
Challenges in Synchrony & Interconnectivity of Auditory with other Sensory Systems......

Narrow Range of Optimal Arousal

Behavioral Disorganization
Optimal Level of Arousal
Low Arousal

Wilbarger & Wilbarger, 1991 Sensory Events Over Time

Challenges Making Meaning of what is Heard & Seen - Supporting for Physical & Emotional Regulation

Anxiety Feedback Loop

Environmental influences
Challenging Sensory Processing
Poor Comprehension Situation
Add fuel to the fire

Anxiety

Pediatric PT & OT Services
The Offices of Rosemary White & Associates

Ricki Robinson MD
The Noise…….

“Observation of behavior in response to the sensory environment” guides us, parents & clinicians, to understand an individual’s sensory profile.

As a human being, it is important to “KNOW HOW TO READ EACH INDIVIDUAL”.

As we interact with the children & families…..

The understanding of their UNIQUE INDIVIDUAL PROFILE will inform us…..

How to tailor our interactions to support the relationship…. & their functional emotional development.

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Joseph LeDoux, The Emotional Brain

Memories = Sensory fragments

Low Road sensory with emotional stimulus goes directly to the Limbic System & emotional response is to the single sensation.

High Road sensory with emotional passes through the sensory cortices & interconnectivity between the cortices supports a comprehensive perception.

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Narrow Range of Optimal Arousal

Behavioral Disorganization

Optimal Level of Arousal

Low Arousal

Wilbarger & Wilbarger, 1991

Sensory Events Over Time
### Sensory Modulation Continuum - Synchrony of Sensory Processing

<table>
<thead>
<tr>
<th>Failure to Orient</th>
<th>Homeostasis</th>
<th>Over Orientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Synchrony</td>
<td>Synchrony</td>
<td>Lack of Synchrony</td>
</tr>
<tr>
<td>Delay in Sensory Processing</td>
<td>Robust Interconnectivity</td>
<td>Delay in Sensory Processing, Sensory Association, Interconnectivity,</td>
</tr>
<tr>
<td>Sensory Association, Interconnectivity,</td>
<td></td>
<td>Sensory Association, Interconnectivity,</td>
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<tr>
<td>Limbic Response Subtle</td>
<td></td>
<td>Sensory Association, Interconnectivity,</td>
</tr>
<tr>
<td>Failure to orient</td>
<td></td>
<td>Sensory Association, Interconnectivity,</td>
</tr>
<tr>
<td>Lack of attention</td>
<td></td>
<td>Sensory Association, Interconnectivity,</td>
</tr>
<tr>
<td>Shutdown or withdraw</td>
<td></td>
<td>Sensory Association, Interconnectivity,</td>
</tr>
</tbody>
</table>

- Remember No Sensory System Functions Alone
- We have to think about how Sensory Systems Relate to One Anothrs & Give Meaning to Every Experience

### Arousal & Sensory Modulation
- Sensory Processing
- Sensory Modulation
- Sensory Discrimination
- Perceptions

How do we bring our understanding of this individual difference into our affective interaction?
Is it more than sensory diet?

### Synchonry of Sensory Processing

No Sensory System Functions Alone
Sensory Input Occurs Simultaneously

Sensory Systems Communicate & Contribute to Perceptions
Sensations are Connected in Meaningful Ways in Concert with the Emotional Texture & Affective Tone that Occurs with the Sensory Experience

The outcome of this is unique to each individual’s experience & neurobiological profile

Is it more than Vision???

### Healthy Response to Sensory Input

Is it more than Vision???
AFFECT, FEELING, EMOTION ARE RELATED BUT FOR SOME INDIVIDUALS THEY ARE PRIMARILY RESPONDING TO

The physical change........ sensations, experienced in the body that occur in the face of arousing stimuli....

What happens to the body in the moment:
- Increase heart rate
- Muscle tension
- Decrease in Facial expression with flat forehead & lowered eye lids
- Decreased ability to hear

AFFECT, FEELING, EMOTION ARE RELATED BUT FOR SOME INDIVIDUALS THEY ARE PRIMARILY RESPONDING TO.....

The feeling........ when the physiological response become an awareness in consciousness

When affect, feeling and emotion are synchronous we experience......

- sensory,
- awareness
- emotion
- memories

Thinking in the moment!

AFFECT, FEELING, EMOTION ARE RELATED BUT

SOME INDIVIDUALS ARE PRIMARILY RESPONDING TO....

- The Emotion, the broadest concept & most abstract concept
  - the physiological response,
  - The trigger of awareness in consciousness
  - The emotions around the experience
  - The association of past experiences & memories

Gil Foley, 2012

Thinking in the moment!
Synchrony of Sensory Processing

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Narrow Range of Optimal Arousal

Behavioral Disorganization
Optimal Level of Arousal
Low Arousal

Wilbarger & Wilbarger, 1991
Sensory Events Over Time

Video: Sensory Preferences

Sensory Processing & Interaction

- When there is an understanding of the relationship of the sensory systems & the arousal, attention, action of the child it inform caregivers how to tailor their “sensory affective inter-action” to enable those systems to join & harmonize with the leading sensory system.

- The conscious tailoring of sensory affective inter-action in the course of interactions supports co-regulation
  - to develop a back & forth flow in the relationship
  - gives meaning to events.
Video: Mom Shares Attention

Video: Affective Interaction to Bring Harmony...Engagement

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Tacoma, Washington

Part 3B:

DIR®
from OT/PT
Focus on the Postural Control
“i” of DIR

Individual Profile
Postural Control for Function

- Postural control enables a child to co-ordinate movement of the extremities with the trunk
- Postural control contributes to balance to maintain a stable posture & equilibrium during movement
- Adequate postural control is necessary for the child to express purposeful gestures & actions, to obtain desires, to interact within the environment & in interactions with others.

Presented by: Rosemary White, OTR/L
Date: April 3 & 4, 2017
Movement

- Movement is crucial to every other brain function. Including memory, emotion, language & learning.
- Motor function is as crucial for some forms of cognition as it is for physical movement.
- Motor function is crucial to behavior, because behavior is the acting out of movements prescribed by cognition.
- If we can better understand movement, we can better understand thoughts, words & deeds.
  Ratey, 2002 p.148

Efficient Postural Control Requires.....

- Adequate Muscle Tone
- Grading of movement
- Co-ordination of upper & lower body movements
- Bilateral Co-ordination
- Rotation
- Awareness of base of support
- Balance & equilibrium

Postural Control

Do I understand how the child moves?

Can I find a way to join the child in his movement so that our interaction is fun & purposeful?

How are these ways of joining my child providing new opportunities for increasing his movement & experiences?

Early Movement
Early Movement

Handling to Support Movement
Embracing the Child's Intent

Try using gentle physical support with your hands to assist your child’s movements so he can act on his intent. Support his or her:

- Hips to connect the top half of his body with the bottom half
- Shoulders or hands to help him stay still or to be steady while moving
- Feet to give him a point to push off from when climbing

Help your child do what he wants to do - don’t control the movement

Video - Handling to Support Movement
Embracing the Child's Intent

My Body May Not Feel Secure…..
Discover How the Child Moves

Observe how the child moves as he gets up from the ground, moves about the room, climbs on the furniture, sits in a chair, gets into a car, gets into bed, etc.

Do his movements seem unsure or confident & secure?
Does he move fast or slow?
Is he clumsy or coordinated?
Does he bump into things or easily navigate within the environment?

Video:
Feeling More Physically Adventurous..

Thinking about Movement

Imagine yourself moving...
Do you have a picture of your body?
Imagine how your muscles are working
Do you know where you are in relation to the space around you?
Imagine yourself in your child’s body & try to feel what it may feel like for him.....
Do you have a sense of your child’s picture of his body?
Can you imagine how his muscles are working?
Does your child have a sense of where he is in space?

Video:
Movement in Rhythm
Video: Tapping into the Rhythm

Video: OT DIR® Floortime with Group

Infancy & Early Childhood Conference
Tacoma, Washington
Part 3C:
DIR®
Focus on the Praxis
Including Motor Planning
"I" of DIR

Presented by: Rosemary White, OTR/L
Date: April 3 & 4, 2017

Individual Profile Praxis

Efficient praxis enables us to -

- Have clear ideas & intentions
- Organize & sequence the steps towards a goal prior to action (motor planning)
- Physically execute the steps of the desired action
- Adapt the plan in response to changes in the environment or in response to another's action or ideas.
To have Successful Praxis......

- Ideation – “I have an idea”; “I see & want to do”; “I think & want to do!”
- Planning - “What will I do?”; What did I do in the past, or have seen in the past that was like this?; “What will I need?”; “What materials will I need to do this?”
- Sequencing – “What should I do first, second, third ... to be successful with this idea?”
- Initiation – “My energy goes to the first step of the sequence”
- Execution – “Now I follow the sequence”

While executing the motor actions related to the plan there is constant feedback from the senses providing comparison of feedback with the anticipated & expected motor actions (the feedforward). Adaptation....

As there is moment to moment feedback from the body -> Comparison are Made -> & Adaptation to the Motor Plan is made in real time!!!

Postural Control & Praxis
A Dynamic Process

- While a new task is being learned, such as riding a bike, you use the front part of the brain (executive function & motor cortex.)
- While learning a new task, to execute properly, we need to plan, to be aware of how we are affecting the environment, to monitor ourselves as to how we are doing & to update the plan with moment to moment information coming to us from our initial actions.
- As you master the task, it becomes automatic, & responsibility for it is shifted to the lower parts of the brain, freeing up neurons in the cortex for new learning.

Praxis – Motor Plans

- Assume your child has an idea!
- Your child has a plan. Discover it & join in!
- Try to predict what your child wants to do:
  - Observe your child as she picks up a toy, goes to a particular toy or to the cupboard. Ask yourself what is her intent?
  - Read your child’s subtle cues
  - Treat what your child does as purposeful - pretend he meant to do that
  - Invest in whatever your child initiates or imitates
- If you still can’t predict what your child wants to do, watch her eyes, turns of her body, or listen for a sound or word that gives you a hint

Ratey 2002
Supporting the Child’s Idea & Motor Plan

Join your child by using your emotional display to help her do what she wants to do
• Use a gesture (such as a point or a sweep of your hand), a facial expression, or a comment that says “Oh, I know what is coming next.”

Resist “doing” for your child to encourage her to motor plan & to show you her intentions
Wait, hold back & use pauses in your interaction to give your child time to organize a plan

Supporting Arousal -> Attention ->Action

Reflection

Were you able to see & predict the child’s motor plan?
• How did mom respond to her child’s subtle cues such as, where she looked or where she moved
• What happened when Mom joined & supported her child’s intentions?

DIR Floortime Shared Problem Solving in Daily Activities….
Synchrony of Sensory Processing Supports
Shared Social Problem Solving

In DIR® Interactions are Tailored to
the Child’s Unique Individual Profile
to Support the Child’s
Synchrony of Sensory Processing
& to
Create Meaningful Perceptions of
Interactions with Others
& their
Environment

DIR® Floortime to Support a Long
Continuous Flow – Playful Interaction...

THIS IS A DYNAMIC PROCESS FOR ALL OF US......

“Observation of behavior
in response to the sensory environment”
guides us, parents & clinicians,
to understand an individual’s sensory profile.

As a human being, it is important to
“KNOW HOW TO READ EACH INDIVIDUAL”
As we interact with the children & families.....

The understanding of their UNIQUE INDIVIDUAL PROFILE
will inform us.....
How to tailor our interactions to support the relationship....
& their functional emotional development
A Dynamic Process!!!

The DIR Model Guides Therapists ......

- To embrace the sensory affective experience as the child explores play in interactions.
- To tap into the "just right challenge"
- To support play in order to develop the child's "sense of self", both physically & emotionally.

DIR® Floortime Outside...

DIR® Floortime with Groups
When we take our understanding of motor control, sensory processing, sensory modulation & praxis & integrate it with the rich “emotional texture” of DIR®/Floortime & are guided by the “Functional Emotional Levels of Development” we provide a treatment that addresses “the whole child.”

This results in addressing the physical, the cognitive & the emotional development in a sensitive functional relationship with a significant other.

**DIR ®/Floortime**

**AFFEVTIVE INTERACTION THAT IS TAILORED TO THE INDIVIDUAL CHILD & CAREGIVER IS THE CORE OF DIR FLOORTIME.**
Key Considerations for Treatment from the OT/PT Perspective

It is not just what you do

But

How you do it!!!!!