

Emotional Processing and Trauma-Informed Care in Pediatric Occupational Therapy

PDH Academy Course #OT-????
3 CE HOURS

AOTA LOGO

This course is offered for 0.3 CEUs (Intermediate level; Category 2 – Occupational Therapy Process: Evaluation; Category 2 – Occupational Therapy Process: Intervention; Category 2 – Occupational Therapy Process: Outcomes).

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Course Abstract

This course examines trauma's effect on emotional processing, demystifying some of the emotional behaviors encountered by pediatric occupational therapists. It reviews theories of behavior, touches on the different stages of emotional development and its overlaps with sensory processing, and examines the importance of play. It continues with a discussion of tools for assessment and intervention, and closes with a "meltdown recipe."

Target audience: Occupational Therapists, Occupational Therapy Assistants (no prerequisites).

NOTE: Links provided within the course material are for informational purposes only. No endorsement of processes or products is intended or implied.

Learning Objectives

At the end of this course, learners will be able to:

- Differentiate between behavioral theorists
- Identify stages of emotional processing, with attention to attachment behavior
- Distinguish between thinkers and theories pertaining to play
- Recognize factors that influence the development of play skills, and identify emotional themes in play
- Recall assessments and interventions relevant to trauma-informed care
- Identify elements of the "meltdown recipe"

Timed Topic Outline

- I. Trauma and Trauma-Informed Care: An Introduction
- II. Emotional Development and Behavior (45 minutes I-II)
 - The Role of Emotion in Learning Behavior: Theories and Thoughts;
 - Developmental Stages of Emotional Processing; Overlap between Sensory Processing and Emotional Processing
- III. Play in the World of Children (60 minutes)
 - Play is the “Work” of the Child; Developing Play Skills; Emotional Themes in Play
- IV. Assessment and Intervention (60 minutes)
 - Assessment; Intervention; The Meltdown Recipe
- V. Conclusion, References, and Exam (15 minutes)

Delivery & Instructional Method

Distance Learning – Independent. Correspondence/internet text-based self-study, including a provider-graded multiple choice final exam.

To earn continuing education credit for this course, you must achieve a passing score of 80% on the final exam.

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Course Author Bio & Disclosure

Maude Le Roux, OTR/L, SIPT, RCTC, DIR® Certificate, Clinical Director at A Total Approach, is an accomplished occupational therapist with great affinity for learning and understanding the human brain.

She was born and raised in South Africa, and graduated from the University of Stellenbosch in Cape Town in 1984. Maude married Charl Le Roux in 1986 and moved to the USA in 1993. Together, they opened A Total Approach in September 2001. Maude is SIPT certified and specializes in Sensory Integration services as it applies to functional activities of daily living, including improving the ability of any child to partake in his/her learning environment. She also holds a certificate in DIR®/Floortime™, and is a certified Tomatis Consultant.

Maude has presented her Tomatis work in Dublin, Greece, France and Panama. Maude is an international trainer in Tomatis Sound Therapy, DIR/Floortime through ICDL, Interactive Metronome, Cellfield Reading Intervention, as well as for the courses she had developed herself. She has participated in multiple national and international speaking engagements with regards to the field of sensory integration, Autism and Attachment. Maude serves on the board for ATTACH. She has published two books, *The Listening Journey for Children* and *Our Greatest Allies*, available through www.amazon.com.

DISCLOSURES: Financial – Maude Le Roux received a stipend as the author of this course. Nonfinancial – No relevant nonfinancial relationship exists.

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As pediatric occupational therapists, we encounter emotional behavior in many different shapes and forms. While these surface behaviors are what we see, it is frequently what we cannot see that needs to shape our interventions. This course demystifies some of these behaviors: it examines trauma's effect on emotional processing, and provides support for appropriate assessment and intervention practices.

We will open with a review of different theories and thoughts with regards to behavior, exploring contributions from thought leaders of the past. Next, we will visit the different stages of emotional development, examining its overlaps with sensory processing. We will consider the importance of play and its utility in exploring the symbolic world of children, followed by a discussion of tools for assessment and intervention. Finally, we will consider a “meltdown recipe” that I have developed in response to trauma, which has provided relief to many families over the years.

Trauma and Trauma-Informed Care: An Introduction

Often when we think of “trauma” we think of violence, but trauma can occur in many different ways. We may encounter children with medical trauma, birth trauma, developmental trauma, losing the mother of the womb and being adopted, being in several different foster care situations year after year, the loss of a loved one, witnessing abuse at home, experiencing abuse, and so many others.

As therapists, we plan intervention in a strategic way, always thinking of the next step. For children who have experienced trauma, though, the unknown “next step” can be terrifying. Because they do not feel equipped to protect themselves, they worry about and fear what is going to happen next. What we might see praxis difficulties, or difficulties visualizing the next step or idea, is instead rooted in a fear that they will not be able to cope, that they will be out of control. In response to this fear, these children become overly controlling, and manipulate situations to protect themselves.

Sensory processing assessment and intervention provide a strong frame upon which we can build – with caution, bearing in mind the impact of trauma, and avoiding triggers that may re-enact it.

Remember that it is difficult for children who have experienced trauma to feel good about themselves. Feeling out of control and unable to reach the developmental milestone of overcoming the good and the bad within themselves, they live with a perpetual sense of “I am no good.” Thus, they don't believe that they “deserve” good experiences or compliments, and

hearing “good job!” has little to no meaning for them. Remember too that children who have experienced trauma tend to spiral into patterns of seeking external control for what they cannot control on the inside: in the course of struggling with their own acceptance of themselves, they may resort to pushing the therapist into a defensive position, causing you to want to go into “discipline mode.” It rarely is the case that these behaviors are about you as the therapist, but rather a reflection on what the child is feeling inside, as the trauma maintains a devastating hold on their psyche. We have to shift our mindset and change our defensive response to respond in a way that is reflective of their inner process, rather than their outward behaviors.

My hope is that this reading will encourage you to become the facilitator of change you want to be, and that you will continue to develop your reflective thinking skills as each child informs and teaches you.

Emotional Development and Behavior

The Role of Emotion in Learning Behavior: Theories and Thoughts

One of Golda Meir’s famous statements was: “One cannot and must not erase the past merely because it does not fit the present.” This statement holds even truer today than when she was living in the 1900’s. We find ourselves in the midst of constant evolving change, and these changes are impactful on how we view children and their development. When I grew up, we were climbing trees, playing, and always on the move at the age of 5. Today we require children at the age of 4 to sit quietly in a semicircle of peers for periods of 20 minutes or more at a time. To put it another way, while development has not changed through the ages, our lifestyle, circumstances of living, and life expectations have. And though change for the most part is good, we need to think about the ever-increasing numbers of children who struggle with developmental delay and strong emotional behaviors. For this we need to turn to some thought leaders, all of whom continue to influence my work.

John Dewey initiated a strong progressive movement in the USA in the 1880’s. His philosophy was that children learn from doing, and that learning should involve real life material and experiences. From his point of view, the demands of the social situations in which children find themselves stimulate them to learn, and their powers of experimentation and independent thinking furnish the material and give them their starting point. In other words, for him, the social situational experiences drive the intrinsic motivation of the child to initiate, leap forward, and learn from his own experimentation.

Just a little later, also in the late 1800’s, Maria Montessori was developing her thought process in Italy, which permeated through the US as well. She believed in child-centered environments, providing real tools that work, keeping materials and equipment accessible, creating beauty and order, competence and responsibility, scheduling large blocks of open-ended time, and that the adult should spend more time observing than teaching.

Erik Erikson was a psychoanalyst who brought his thoughts with him to the US in the 1930's. He developed the famous "eight stages of man," and while we cannot do justice to his thinking within the scope of this course, we will mention the four earlier stages just for illustration:

- 0-1 Trust vs. Mistrust – The baby's first relationships set up the drive to grow and learn.
- 2-3 Autonomy vs. Shame – Our intrinsic drive to develop with confidence ("I can") vs. a need to self protect the ego against the shame of not being able
- 4-5 Initiative vs. Guilt – The ability to use our initiation to be curious, apply ourselves to learning and grow vs. needing to assuage the guilt they feel for not feeling accepted and not valuing themselves.
- 6-12 Industry vs. Inferiority – Attaining social rewards for being productive vs. feeling inferior, lost and experiencing a lack of self worth.

Jean Piaget, who wrote his first scholarly work at the age of 11, brought us constructional levels of early development during the first half of the 1900's. He extolled the value of play in order to develop sufficient emotional skill to become a social participant in every day life, taking it from a pre-operational level to a constructive level of play.

Working at the same time as Piaget, though he gained more prominence later, the Russian Lev Vygotsky (one of my personal favorites) objected to the analysis of children's abilities based solely on intelligence tests. He stated that research should be both qualitative and quantitative – careful observation of children was as valid as scores on a test. He provided us with the term "Zone of Proximal Development" (or ZPD): the distance between the most difficult task a child can do independently and the most difficult task a child can do with help. Through interaction and relationship, with scaffolding, one can take a child from their level of understanding and support the learning to a higher level. For him, the process of learning (the "how?") was as important, if not more important, than the content (knowledge of object and purpose of object) – he believed that children need to understand the purpose behind a task to integrate the learning.

In the late 1990's, Colwyn Trevarthorn and his colleagues brought us the term "intersubjectivity." His research showed that infants are born with awareness specifically receptive to subjective states in other persons. This natural sociability of infants engages the interest, purposes, and feelings of willing and affectionate parents, and serves to intrinsically motivate companionship, or cooperative awareness. This primary intersubjectivity contains shared affect, focused attention on each other in a way that the child's enjoyable experiences are amplified and his/her stressful experiences are reduced and contained, with a congruent intention to understand and enjoy each other. He also noted that this occurred through contingent nonverbal and verbal communication.

Margaret Mahler (also mid to late nineties) brought us the "Separation-Individuation" process. She discussed 4 sub phases during which the developing child separates from the parent in order to individuate into their own person and stand on their own two feet, so to speak. The first sub phase describes the differentiation and the development of the body image. This is followed by the early practicing period when the infant starts to move away physically from mother – crawling, climbing, and righting himself. Then we enter the famous "terrible two's" when the

child expresses constant concern for the mother's whereabouts as the awareness of separateness grows, and demonstrates an increased need for the mother to share his/her new skills and experiences. The fourth sub phase is where it all came together for her. She described it as consolidation of individuality, where the child finds the beginnings of emotional object constancy. This occurs roughly during the third year of life and includes unifying the "good" and the "bad" object into one whole representation. This phase depends on trust and confidence as well as the cognitive acquisition of the symbolic inner representation of the permanent object. The child fears this stage initially, as they experience the widening of the distance (separateness) from their parent as "rejection," which can cause great turmoil; however, they grow into understanding that the security of their parent figure is now within themselves, and they have not lost, but gained.

In intervention we frequently encounter that children with developmental delay go through these phases much later than their typically-developing peers, as they do not have the necessary developmental maturity in their autonomic and central nervous systems. This returns us to the discussion of trauma, and the impact of trauma in development.

One of my favorite contemporary authors is Bessel Van Der Kolk. In his book *The Body Keeps the Score*, he writes about the inner resilience with which trauma is overcome, but also the impact on, and toll this requires, of our entire system. He mentions how traumatic experiences leave traces on our minds, emotions, our capacity for joy and intimacy, and also our biology and immune systems. Trauma – past or present – remains embedded in our limbic memory, just as positive memories also do.

Sometimes a specific trauma impacts the child; in other cases a series of difficult circumstances and experiences culminate in complex trauma. For example, children with strong emotional reactivity who go through multiple experiences of "feeling out of control" could develop complex trauma, caused by restricted development in the central nervous system. Whether a trauma occurred a long time ago or is being repeated by current life events, the slightest hint of "danger" can mobilize disturbed brain circuits and release large amounts of stress hormones. This causes intense, unpleasant physical sensations that frequently result in impulsive and aggressive actions; as a result, these children often begin to fear that they are damaged inside. They experience hopelessness: the belief that "no one can help them."

In his book *The Interpersonal World of the Infant*, Daniel Stern wrote about the development of a "sense of self," which he breaks down into the Emergent Self, Core Self, Subjective Self and finally the Verbal Self. He also describes the overlap between psychoanalysis and developmental psychology. We spend much time in our field discussing milestones and physical development, yet within these physical milestones there is a little person emerging – and during all of our observations, this little person is making their own observations of the world, creating their own meaning, and also enacting upon their perception and meaning as if their conception is the true reality of the situation. When this emerging self encounters trauma, their perception becomes their reality and is embedded in their subconscious and this is what they act upon, no matter the logic we try to attribute to the situation.

Daniel Siegel has written multiple books (all well worth reading), and coined the term interneurobiology. For our purposes, though, his “hand model” of the brain, which can be found on YouTube, is both accessible and comforting to parents of children dealing with trauma. The essence of his message is that if the child is currently emotional and upset, the right brain has taken over and even past logic is no longer accessible to the child. If we keep using language or logic to calm the brain, the child cannot attune to the message, as the left-brain is not primary at this time.

Bruce Perry trains professionals in his Neurosequential Model, which is a specific way to look at both a child’s history and current level of functionality. It considers the impact of trauma on development, as well as the impact of restricted development on dealing with trauma.

The final message lies within the culmination of all these thinkers: every child is developing a physical, cognitive, emotional, and social sense of self, and their early years carry enormous weight as they become adults.

Developmental Stages of Emotional Processing

Despite the growing societal trend to consider behavior the driver for intervention, both history and current research continue to indicate that it is the relationship between parent and child, (or therapist and child), that is driving the behavior. We have to look deeper than what we can observe and “chase the why” in order to truly intervene and change the behavior.

Dr. Stanley Greenspan and Dr. Serena Wieder co-authored two seminal books: *The Child with Special Needs* and *Engaging Autism*. Dr. Greenspan also authored multiple books on his own, such as *The Growth of a Mind* and *Playground Politics*, among others. Perhaps best known for DIR/Floortime®, Dr. Greenspan developed the affect diathesis hypothesis, which basically considers the neurological fact that affect drives engagement and neuronal development. Our intrinsic motivation and drive to develop is derived from relationship, and the affective quality of the relationship is the important key. So the “D” in DIR covers the developmental levels, which we will look at shortly. The “I” would be the individual differences each individual has in their profile: all of our sensory adaptations, our neurological functions, and our use of language, communication are considered within the model. And the “R” is for relationship, for the reasons explained above. Finally, “Floortime” is the actual techniques we use on the floor to mobilize all three components during our occupational therapy sessions. (Dr. Greenspan formed the Interdisciplinary Council for Developmental and Learning (ICDL); more information on the training processes in this method is available at www.icdl.com.)

Even though this work initially was intended for children on the autism spectrum, I have found Dr. Greenspan’s development model useful for all children who struggle with emotional processing delay or difficulty developing mature socio-emotional skills, including those experiencing the effects of trauma. The model discusses nine developmental levels; we will focus on only the first six.

The first functional emotional developmental capacity focuses on the work of self-regulation in the body. This essentially is the task of the baby in the first three months of life. The ability to

self-soothe, co-regulated by the important relationship with the mother, becomes the basis for all development to follow. The baby learns that there is a certain amount of comfort in the mother's arms and the soothing tone of her voice, and the attunement between mother and baby is an important catalyst for the growth of the mind and body. Dr. Ed Tronick's research (*The Neurobehavioral and Social-Emotional Development of Infants and Children*), as well as that of the thinkers described in the first section, corroborates this very important interplay of relationship and regulation. As occupational therapists we work with sensory modulation, which is a really important consideration at this stage, informing part of the differences between developing individuals. For example, it is very difficult for a mother to develop attunement with an infant that keeps pushing her away, making her feel vulnerable and rejected by her own baby. She may have no idea that the baby is not rejecting her, but is tactile sensitive, and cannot adapt to touch very well... or auditory sensitive, and mommy's soothing murmurs sound like an avalanche of noise in the little ears... or vestibular sensitive, and experiencing gravitational insecurity, causing him to stiffen each time mom lifts him up in the air. While the disconnect in the mother-baby relationship is devastating for both parties, misunderstanding this communication can have tremendous repercussions on the development of the infant. Ideally the mother forms the secure base that the baby can trust, which enables him to develop attachment. This trust becomes the "worldview" of the child from which he drives himself forward: becoming curious, exploring, and always growing. However, when the secure base is not formed, it can set the tone for mistrust – the baby's insecurity plants the seeds for an insecure, anxious child.

The second level of development encompasses the quality of engagement of the infant. The interest in first exploring mommy's face, reaching out to touch colorful objects, wailing to gain mommy's nearness and attention are all important features of this milestone. While we discuss eye contact as a physical skill, engagement has so much more going on emotionally: frequently a child can break eye contact with us, but still be "with" us. (To observe this in action, try this: ask an adult a tough question, and see how quickly they break eye contact to consider, think, contemplate, organize thoughts, and articulate their response.) At this stage, we consider the aspect of joint attention, which becomes an important building block to learning and the ability to sustain attention. Joint attention occurs when both mother and baby are focused on the same task – not simply in the same vicinity, each doing their own activity. It develops as the baby is intently focused on the parent, their face, their reactions; learning, in essence, to be "with" another. According to Mahler and Stern (introduced earlier in the course), the sense of separateness grows, but that feeling of "being together" still matters: it is what creates intimacy, our ability to simply be with our partners in our adult relationships and to feel what each other is thinking without voicing it. Trewarthon (also discussed earlier) named this concept "intersubjectivity," primary in the baby, secondary in us as adults. This level of development sets up the foundation of interpersonal relationships, the understanding of nuances and emotional tone, and the drive to communicate – and it depends so much on individual differences of motor planning and gestural communication. For example, if a child is struggling with motor planning and does not develop the use of gestures very well in early development, they have difficulty understanding gestural cues in their own bodies, which in turn reflects on having difficulty reading the social nuances and cues in others. They realize something is happening that they don't understand, but they cannot adequately assess the hidden message beyond the verbal communication. They may disengage as confusion raises their anxiety. As intersubjectivity relies

on what is not being said, a delay in achieving this skill impacts on both the intimacy of a relationship and engaging in social situations.

The third functional emotional developmental capacity is the ability to communicate within conversation. We talk about having circles of communication; for example, the child initiating, the adult responding, and the child responding again contingent to the topic at hand. These circles are both verbal and non-verbal. In well-developed children and adults the verbal discourse is supported by the non-verbal gesture, whereby the latter in essence confirms or negates the verbal message: if we speak in a harsh tone of voice about warmth and empathy, the incongruent message frequently leaves us feeling uncomfortable with the speaker. Stretching these circles into multiple chains of circles that lead into having a communicative discourse would be the end goal. Individual differences in language, motor planning, sequencing, rhythm, and timing become important building blocks en route to building this congruency. If a child struggles to express language or struggles with motor planning, they may communicate strictly to have their needs met. For example, they could request a cookie from their parents, but after receiving it, they would break the communication – it was only used because it was driven by a physical need. The development of discourse, however – the ability to engage in a two-way stream of back and forth circles – depends on the intrinsic motivation to want to stay engaged, accepting the conversation itself as an end goal.

Development becomes more complex with level four. During this level, the abstract mind comes into play and the child starts to embark on the journey of understanding feelings, honing their own perceptions (which, initially, frequently may not match emotional reality). If the child is able to get through this level robustly, it becomes an important building block for problem solving, working with others as teammates, and moving beyond protection of the self to become more “others”-centered. However, this is quite a vulnerable stage for children, especially if they have witnessed or experienced a trauma and the only way they have to make sense of it is their undeveloped perceptions. Behavioral difficulties based on this immature development may emerge, causing these children to respond to different triggers in different ways. The ability to take perspective, to have a theory in mind, to know that someone else may have a different thought than oneself, are important individual differences that allow children to break through this layer. In contrast, children who experience delay at this level of development will find it difficult to move beyond themselves in order to consider and entertain someone else’s thoughts and feelings. The ability to sequence motorically as well as cognitively comes through the work of creating a beginning, middle, and end of a drama, which also becomes a building block for reading comprehension later. A delay at this level of sequencing and organizing the thought process may cause a difficulty in the ability to visualize the drama as it unfolds, or follow the sequence of events in order to re-tell the story to another, as well as answering comprehension questions.

Role-play is an important tool to understand the viewpoint of others, to essentially “stand in someone else’s shoes” and develop empathy. As we will discuss in future sections, while being playful and engaged in play to develop and learn was important in the first three levels, play now becomes the work of the child. When typical children play, they will frequently act out the themes of everyday occurrences, which could be a visit to the dentist, the mommy feeding the baby, the teacher in pre-school with a class of students at

circle time, a day at the beach, or the parents cooking. It is during play that children work out what the meaning of these experiences is and how they integrate the models they observe around them. The repetition is instinctive, self-driven by their own intrinsic motivation, and certain parts are embellished and dramatized as they view the world through their subjective perception.

To deepen the understanding of emotions, the child then moves into level five: the important world of symbolic thinking. Having a cognitive understanding of mad, happy, and sad is one aspect of level four, but in level five, these emotions extrapolate into a variety of different emotional themes. The very work of Mahler's separation-individuation has a strong foothold in this level: symbolically the child has to leave the mother (separate) in order to stand on their own feet (individuate). The child starts experiencing fears, tries to understand death and dying, and struggles with what "forever" means. As children grapple with these themes and experience nightmares of feeling lonely and rejected, they also learn that they can make it through the obstacles in life, and see that they can become a "big boy" or "big girl." As a better-understood reality replaces the fantasy, the child realizes that nothing is lost – mom is still there – and frequently the child now starts to explore daddy a little more as gender identity sets in. (Walt Disney absolutely knew how to use this stage of development in his movies. How many evil stepmothers are in these stories? How many children experience "loss" of one parent? Frequently the father is an absent figure that is always forgiven, but the mother has the pivotal role.) When a child is still working through this phase and experiences trauma, it can be very difficult indeed. These children might avoid and try to suppress symbolic thinking, over-emphasizing cognitive development instead, which halts the emotional development. They can get away with it for a while, but it is symbolic thinking that makes us reflective and allows for increasing cognitive flexibility to be able to entertain problem-solving and confront difficulties in a flexible way with a good attitude. Thus the deficiency would surface in behaviors we would likely call "rigid" – wanting everything only his or her way.

Here, too, we see the importance of play: children need to work through these emotional themes in play in order to understand and integrate them. How do children understand power and authority if they do not play it through? Feeling the power of the wizard that waves a magic wand and can do anything is absolutely exhilarating! Likewise, when the child changes the therapist into whatever they want them to be, this gives the child freedom – to explore the different worlds of emotion that deepen their understanding of others, while also shaping themselves by choosing how they want to be.

The sixth functional emotional developmental capacity is the phase of complex problem-solving with symbolic ideas through logical thinking. So the basis for social thinking is established in level six, and our socio-emotional maturity is linked to this development. This is really where all six levels come together: we have to be able to cope with problems in a way that does not dysregulate us, but rather through understanding the nature of our own feelings, being able to compare and contrast with the feelings of others, sequencing through the problem objectively, and developing a plan A, but also a plan B in case of need. Likewise, a child who has successfully navigated level six is able to reflect, think a situation through before acting, consider everyone in a group of peers, and negotiate ideas to convince them (or let go of their own idea and follow another idea that may appear better). To further complicate matters, we simply

cannot consider only one aspect of development at a time: the child continues to develop all of these pieces, and we impact all of them as well. As adults we are always using all six levels at once, but we do not develop them at once. It is tough to “teach” social thinking, if all of these levels are not embodied in our subconscious. We can certainly “teach” social manners and lead by example, but social skill is an internal process with multiple aspects coming together: it is developed, not taught.

Bear in mind: all of these levels are typically reached by the age of 4 years old! This is why we need to let children teach us what lies underneath their behaviors. It is easy to perceive a child as “manipulative,” but what does that behavior really mean? Does the child really have the sequencing ability to work cause-and-effect out to the high level that logical manipulation demands? Does the child really have social perspective to such a degree that it is logical to attribute this skill to them? Or are they simply protecting themselves against perceived threat, using self-centeredness as a coping strategy in order to control externally what they cannot control internally?

Overlap between Sensory Processing and Emotional Processing

When discussing *sensory processing*, we consider two different “branches” that may overlap, but do not have to.

In *sensory modulation*, the premise is that we all have certain neurological thresholds that are individual to us and assist us in the process of remaining alert and available for learning; the autonomic nervous system within each person attempts to find that “just right” balance that allows us to pay effective attention. This balance is created by the overlap of the sympathetic nervous system (arousal) and the parasympathetic system (inhibition).

In *sensory discrimination*, we consider the work of the central nervous system, which supports the registration and processing of sensory information through the overlap of the 12 cranial nerves in order to discriminate different nuances of touch, sound, etc., while also integrating these systems together in order to create a developing and learning brain.

Note that both branches require registration of information. Thus, what starts as a sensory modulation difficulty will result in the avoidance of the very activities needed to explore registration and discrimination, resulting in a profile with weaknesses in both the autonomic and discriminative system. And likewise, if we are not able to register information adequately, it certainly would impact the speed of processing of the particular system affected, which can conversely again affect the autonomic nervous system.

We will certainly encounter children whose profiles are driven solely by sensory processing difficulties. However, we need to remain aware that emotional triggers may also exist, resulting in deceptively similar behaviors. For example, we frequently observe that children with trauma experiences show high incidences of tactile and/or auditory sensitivity. If our intervention targeting this sensory behavior profile uses the same intervention strategies as we would for children who struggle with sensory processing only, we find that we make no significant progress. In order to make real inroads into creating change and improving the child’s

adaptation to relationship and environment, we must adjust our programming to target both the sensory and the emotional processing at the same time. Of course the opposite is also true. If the child's profile is related to the fact that they are not developing their central nervous system at the same rate and speed as their cognitive system, they are aware of the discrepancy between what they think and what they do, and struggle for control; feeling out of control for multiple years could also lead to a profile such as complex trauma. The difference is that in the first scenario the emotional trauma is driving the developmental delay, and in the second scenario the underdevelopment of the sensory systems is driving the emotional adaptive response. (It will be difficult for a therapist to immediately discern which delay comes first, the sensory or the emotional. Careful analysis of a thorough history, as well as including the parent in the play process, may over time provide clues.)

In general, the first scenario results in a more generalized anxiety, characterized by the development of fears and phobias. In extreme cases it can develop into more pervasive forms of anxiety, such as obsessive compulsive disorder, oppositional defiant disorder, or conduct disorder. In the second scenario, we often see performance anxiety and/or social anxiety. Returning to the first scenario, children may demonstrate improvement in all their sensory processing systems, but the emotional adaptive response can take months longer than the sensory adaptive response to show functional change – in the meantime, they may continue to show the same behaviors at home or at school. In the second scenario, when sensory difficulties drive the emotional adaptive response, we frequently observe that once the child attains skill the performance anxiety lifts, and the emotional adaptive response changes alongside the sensory or very shortly thereafter.

As the brain myelinates, particularly between ages 5-7 years, the body's ability to integrate the different sensory systems in order to support and refine motor planning creates a natural scaffold of a secure physical identity that the child can trust. This scaffold enables children to then continue their social-emotional growth. In other words, we need emotional drive to mobilize the intrinsic motivation to learn, and then we need sensorimotor security to feel emotionally secure enough to move forward with learning. They are always intertwined, not to be separated.

Attachment Behavior

In discerning potential overlaps between sensory processing and emotional processing, we also need to consider the world of attachment behavior. In brief, if the bond between mother and baby is solid, the safe, secure attachment relationship is established and the sensorimotor developmental milestones can be considered in the context of this first relationship. But if this bonding does not happen for any reason (the child's sensory profile, adoption, postpartum depression to name a few), then there is more to consider. Attachment theory consists of four different profiles, originated by Dr. John Bowlby in the UK and closely followed by Dr. Mary Ainsworth in the US. (Dr. Ainsworth is widely known for her research in the "stranger situation," a lab she set up in a specific way to assess different responses of toddlers when first separated from their mothers and then reunited with them.)

Just as the autonomic nervous system requires balance, so our developing mind requires balance: between exploring new tasks, and maintaining relationships within the boundaries of task exploration. We have to grow our innate sense of curiosity and inquisitiveness in order to explore

what the world has to offer and learn as much we can; knowing that we can always return to our secure base creates the balance we need. We have to develop the need to please important people in our lives, because they matter; if these relationships matter too much, however, the other shoe drops and development suffers. In contrast, if we give ourselves over to the world of exploration at the expense of nurturing relationships, we forfeit the exercise of our warmth, intimacy, and intersubjectivity, which leads to a lack of empathy and the ability to work with people around a mutual task. (Academically, this could also lead to overemphasizing the left brain, where rules and logic are primary, because the shades of gray surrounding emotions, centered in the right brain, are distressingly elusive or abstract.)

The first attachment profile is the secure attachment profile, wherein the baby feels certain that their emotional needs will be met. These babies absolutely trust that even when they venture away from mother, she will be waiting with open arms and acceptance when they return. Within this profile are natural stages of shyness with strangers; also, the child will still feel very isolated when mother is taken away and cannot be found. For Dr. Ainsworth, it was all about what happens when mother and baby reunite: how quickly the child allows itself to be soothed and returns to a playful mode.

A second profile is the avoidant attachment profile. In this profile, the child does not trust that their mother will be there when they seek reunification and learns to not expect it. (There are multiple reasons for this, one being that the mother may be providing mixed signals of nurture, care, and discipline.) These children cope with their “loss” by avoiding the relationship to avoid the hurt. Going forward, this profile becomes task-oriented, often at the expense of other relationships: their mantra becomes “My only chance to find peace and happiness is to produce and feel successful in what I do.” They may even experience a lifelong series of disastrous relationships as this area remains problematic. When investigating the sensory profile of a child with this attachment profile, we may find sensory patterns of under-registration, almost as if becoming emotionally “numb” impacts the senses, causing them to become numb as well. The under-registration further impacts motor planning, tool use, and handwriting, and may result in a lack of social experiences within which pragmatic problem-solving can be experienced and learned. We may also observe the hyper-aroused sensory profile, where distrust of relationships causes all the senses to go on high alert and strong investment is made in using the “prickly pear” profile to keep people at bay. This leads to a lack of developmental experimentation via different social experiences, which increases the possibility of immaturity in the nervous system and the way sensory information is processed.

Another profile to consider is the ambivalent attachment profile. The underlying dynamics of this profile, again, are that the child does not trust that the mother will be there for them – this time because she appears to provide the security he needs inconsistently. This ambivalence with regards to safety and security drives this profile – because these children feel unsafe when she is out of sight, they prefer to cling to the mother – and as a result they do not develop sufficient security within their own system. This leads to a lack of autonomy, of a sense of “own power,” and the child has difficulty building his independence away from the mother. For example, these children may develop a terror of sleeping in their own bedroom, as independence holds no allure, only fear, and insist on sleeping with the parent. Children with this profile tend to remain socially immature, and forfeit task-orientation in favor of the relationship with mother. Sensory

profiles differ from one end of a continuum to the other. Some children develop hypersensitivity in order to remain alert to threat, danger, and anything that might interrupt mom's attention to them. Others develop under-responsivity, as they do not want to attend to environments that might take them away from their essential need of mother.

The final profile is the disorganized pattern of attachment, which we see fairly regularly in our practice. While the origin of the profile may be difficult to discern, it is usually found in cases of single or complex trauma. These children may have been removed from different foster homes over the course of their young lives, or witnessed or experienced abuse, or lost a loved one – the list of possibilities is long. These children do not have a specific pattern when challenged. Instead, the range of emotional adaptive responses vary – depression, sadness, or extreme rages such as RAD (Reactive Attachment Disorder) – though the common factor is that the child is unable to organize himself around the response, loses control, and is burdened by this loss of power and autonomy. The very fear of feeling out of control fuels the downward spiral of this profile. These children are tough to work with, but so very lost inside: they simply do not have any form of balance to rely on. Their argumentative and aggressive exteriors are a protective layer in an effort to sustain the ego inside. And, because their cognitive skill is far more developed than their emotional skill, they are frequently described as willful and manipulative. This is not the case. Instead, on a good day, they can comprehend rules and logic, and can access the prefrontal cortex pathway to the left brain to understand executive function. But when they are triggered, it's all about emotion as the left brain is forgotten and the more primal limbic right brain takes control. (Dr. Daniel Siegel explains this very well to parents in his book *The Whole Brain Child*.) In sensory terms, we also view this profile as disorganized, citing “sensory modulation disorder” or “sensory processing disorder.”

So many adoptive parents over the years have asked the tough question, “Why does our child continue to believe she is not secure, and act as if we are not ultra-consistent, when she can clearly see the difference between what we offer her and her past?” Logically and rationally, we believe that the child should be grateful, and feel trust, because she has it so much better now. But it does not work that way all the time. Due to the loss of the mother of the womb, the child feels rejected, unworthy, and unacceptable, and believes that she deserves to experience more losses. She acts upon these future losses before they are even there, because her actions are about her belief, not about what is actually happening to her. It is not logical; it is emotional. And while our intervention will definitely still target the sensory systems, if this core belief is not shaken from its roots, the child could continue to show the exact same behaviors.

The reader should not think that it is all a simple fact of finding exact attachment, emotional, and/or sensory profiles: as you can see, there are many different profiles across this spectrum, all of which can impact the others. Development is complex, even for the typically developing child; it makes sense that we have to consider each of the milestones in the profiles of children with special needs as well. We need to educate ourselves in these different complexities if we are serious about really helping challenging children. A careful assessment will support this process, and we will discuss some tools for assessment later in the course.

Play in the World of Children

Play is the “Work” of the Child

In 2002 the Occupational Therapy Practice Framework (OTPF) included play as one of seven overarching areas of occupation that are addressed by occupational therapists in practice. Well before that, Norma Alessandrini wrote in the *American Journal of Occupational Therapy* (1949), “For each child play is a serious undertaking not to be confused with diversion or idle use of time. Play is not folly. It is purposeful activity.” I alluded to this sentiment earlier in the course, and could not agree more. It is through play that the child does much-needed exploration related to purposeful learning and integration.

The very experience of play is the intrinsic motivator, not the promise of external rewards or motivators. Through play, the child is “working” on creating multiple ideas, offering flexibility with regards to multiple solutions, letting an object represent another object through pretending, and taking charge of all the different actions needed in the story or drama. Pleasant affect is evident, but play also becomes the safe space wherein the child can explore those “ugly” feelings like being scared, fearful, sad, or mad and learn to control them in different ways through their own imagination. Play also encourages active, integrated engagement, which is very different from engaging mostly in cognitive skill through computer games: it involves the entire body and does not isolate skills. Further, play requires considering someone else’s feelings, standing in someone else’s shoes, negotiating your perspective around someone else’s, and creating a constructive plan that will support the purpose of the play. These are all essential skills, and their development is why it is necessary for us to be concerned when children do not play, when they are more attached to computer games, when their “friends” exist electronically and not in reality. Mastering play skills are not only essential for developing social skill, but, as we will discuss in future sections, also for executive/academic skill.

Various thinkers have added essential vocabulary to describe the world of play – voluntary, internally-motivated, process-oriented, fun/enjoyable, creative, exploring tension and conflict, etc. One of my favorites, also mentioned earlier, was Erikson (1960), who saw play as essential to ego development and adapting coping strategies for the challenges that life presents on a daily basis, while at the same time developing and growing. For him, while children play, they create situations related to their reality in drama and story form, which helps them to deal successfully with fears, anxieties, and different emotional developmental milestones.

Piaget (1950-1960), also mentioned earlier, focused more on intelligence, describing three types of games. The first, *practice games*, were sensori-motor-driven, completing different actions for the joy of simply doing them. *Symbolic games* involved the imagination and formation of abstract thinking. *Rule play games* involved rules created by the social sphere in which the individual found themselves, and also involved cooperative play in groups of two or more.

Mary Reilly, a formidable occupational therapist, wrote the seminal book *Play as Exploratory Learning* in 1974. She mentioned three stages of play development as a hierarchy. *Exploratory behavior*, in infancy and early childhood, considers play in new and novel circumstances – focusing on it as the means to an end, not the end itself. *Competency behavior* includes motivation, which ultimately leads to competence in adequately meeting the demands of a

particular situation. *Achievement behavior* is when the first two stages are added to the experience of expectations, adding the concepts of success/failure and winning/losing.

Another occupational therapist very worthy of note is Nancy Takata (1970's), who created five developmental stages of childhood play, which she called "epochs." *Sensorimotor play*, in the 0-2 range (especially the first 18 months), takes place during natural experiences where sensations are paired with motion. *Symbolic play*, seen in 2-4 year olds, is characterized by the beginnings of make believe and pretend play, and also shifts from solitary play to parallel play. Between ages 4-7 *dramatic play (complex, pre-game)* features increased drama creation, with social roles mixed in with fairy tales and myths, and notes the expansion of social participation. *Game play* takes precedence in ages 7-12 when games with rules become fascinating to children, and risk taking, peer empathy, winning/losing, and cooperative play are explored. Lastly, *recreational play* moves to the fore at ages 12-16, when formal peer group orientation solidifies, teamwork is emphasized, and challenging the self and peers is an accepted norm.

Perhaps the most widely known tool in occupational therapy is the Knox Play Scale that has been revised several times (Parham and Fazio, Mosby 1997) and is widely used in research projects. This play scale considers space and material management, pretense and symbolic play, as well as participation.

Anita Bundy (early 1990's) developed a model of playfulness, which for me also resonates with the DIR/Floortime® Model described above. This model draws from agreement in the literature that playfulness can be determined by considering three elements: intrinsic motivation, internal control, and the freedom to suspend reality.

Gordon M. Burghardt (2005), a biologist and psychologist, specified five criteria for identifying play: a sense of the immediate, spontaneous and intentional, can be out of context or fragmented, repeated form of action but not stereotypical, and a sense of relaxation.

In his book *Synaptic Self* (2003), Joseph LeDoux writes "A mind is not, as cognitive science has traditionally suggested, just a thinking device. It's an integrated system that includes, in the broadest possible terms, synaptic networks devoted to cognitive, emotional, and motivational functions. More important, it involves interactions between networks involved in different aspects of mental life." We're not born with this complexity; rather, it is carefully cultivated by the observations of the child, creating certain emotional responses, using intrinsic motivation to enact upon it, and playing it over repeatedly until the integration thereof is sufficient and a newer learning replaces the old. The older, practiced material has to become automatic before the child moves on; otherwise it remains an isolated experience that cannot be retrieved when needed to scaffold in later learning.

Standing on the shoulders of these thinkers, in our practice today, we use play as a means of intervention – targeting other goals beyond the action of play – but we also consider play in itself to be a goal. (For a more in-depth examination, refer to *Play in Occupational Therapy for Children* by Diane Parham and Linda Fazio, which contains a list of research studies that highlight the importance of using play both as a goal and as a means.)

Developing is hard work, and the “playfulness” of play makes the road easier to travel. Today’s world places much focus on “product,” with less attention being given to “process.” But once you attain process, the product will always be there. Play provides process: if children can reach a symbolic level of play, they have a tool that can support them through multiple other layers of development. It is therefore imperative that this important tool not be neglected.

Developing Play Skills

Back in 1991, Bundy’s research (discussed above) concluded that sensory integration might influence the child’s ability to play. This is far from the only postulate: play is complex, and there are many facets to consider in its development.

Let’s begin with a look at typical children aged 1-6 years old, and the play characteristic of each age.

Molly is a one year old, realizing that she can move away from her parent, and actively wanting to make her presence known. She feels empowered by her own increasing physical prowess, relishes her sense of achievement, and wants to explore, touch, and experiment with her environment. She has a strong need to exert control, but as yet no level of maturity with which to exercise this control, so it is necessary for the family to begin to set limits, gradually allowing her to better understand her own boundaries and those of others. Play for her is explorative, laced with curiosity as she attempts to apply function to, and increasingly recognizes the affordances of, different objects.

As a two-year old, Martin experiences some mastery of physical abilities, which brings about a new sense of power and adds to his self-image. He loves to play, and is beginning understand mutual play, though mostly in parallel rather than fully sharing in activities. He is able to visualize what is not there, and understands that one object can represent another: a block could be a car, or a bed for a doll. This is the beginning of the upcoming, very important, symbolic phase that will lead to abstract thinking and understanding non-verbal social cues. When observing his play closely, you will see aspects of his everyday life experiences being added to his “make believe.” This kind of play is extremely important: he is trying to figure out the meaning and the “fit” of these experiences into his life, all the while forming his own frame of reference to integrate information and to build behavior upon. He also enjoys books being read to him, as they provide opportunities to gather and integrate still more experiences.

Eric is a three-year old who is learning through play to distinguish fantasy from reality. He loves to enact different roles and characters and assess how they feel, which forms an important scaffold for the development of empathy. Eric can be quite torn between wanting to take charge one moment, only to crave nurturing in the next moment. He is interested in himself as a person separate from his parents, but is also definitely worried about separating from his parent or getting lost or left behind. While he is learning different ways to deal with situations flexibly, his feelings can still become intensified. He has a younger sister and some days he feels resentment towards her and shows this by being aggressive towards her. Other times he acts like a baby, asking for a diaper when he no longer needs one, or starts talking in baby gibberish when everyone knows he can speak really well.

Sandy (four) and April (five) are both on the verge of becoming “big” girls, and they feel the pressure to “grow up” quite strongly. They fluctuate between being fiercely independent in one moment only in the very next moment to suck their thumb as if they were babies once more. They test their parents by displaying poor behavior – such as possessive phases, where their siblings are not allowed to touch “their stuff” without permission – and watch to see if their parents are going to love them anyway. They tend to blame themselves for conflicts or tough situations their parents are facing. Both girls are curious and ask many “why” questions. They know the difference between “real” and “make believe,” and play out their fears, hopes, and experiences in made up stories with plots that can “thicken” over time. Both girls know the difference of playing alone quite sufficiently vs. feeling lonely in a group of peers. They also alternate their play between playing with their “girl” toys and then playing with “boy” toys as they work on figuring out their own gender identity, carefully observing both mommy and daddy and making comparisons. Both girls are prone to wake up from screaming nightmares as they process their feelings towards themselves and others during their dreams. April has had a difficult experience where she was bullied by another peer in her pre-school classroom and had to figure out a way to cope with this. The girls’ grandfather passed away and it was really tough for Sandy to work through the notion of “never, ever” seeing him again: it struck a chord with her in her separation process as she started to fear her parents leaving her as well. She gets stuck from time to time within her fear of losing control and being abandoned and lost and feeling abandoned. Outbursts of frustration are not uncommon for both girls.

As a six-year old, Steven is taking in great amounts of information, adding stress to his ability to integrate it and use his working memory to its fullest capacity. He is quite competitive and revels in challenges set up by his friends on the playground. He also can a goal for himself and exercise persistence to reach it. His physical prowess is a source of great pleasure for him. His fine motor skills are developing, his parents are proud of his handwriting skills, and he is also able to start reading! Steven is growing strongly in the area of math, as he is capable of seeing three-dimensionally and also learning to measure space and time. He is increasingly able to verbally express his experiences and feelings, and is developing abstract thinking. He loves a good joke (especially “poopie” ones) and sees the hidden innuendo in his peers’ storytelling. He has a clear distinction between what is right and what is wrong, but sometimes his peers are confusing to him, as he is still working on understanding their perspective. His increased awareness leads him to feel more anxious: he worries for his parents, and picks up on their anxiety as well.

Motivation to Play

Among the key factors to consider in the early development of play is the development of motivation to play.

By about 6 months, as their curiosity and investigation expands beyond their first central object (the mother), babies are exploring the complexities of different objects such as balls, rattles, and soft toys. By 9 months they are considering cause and effect toys, combining different tasks such as putting pegs in holes, and are able to negotiate a simple step sequence such as wanting a toy under a chair and retrieving it. At 12 months, babies smile at achieving mastery of a self-generated goal. From here they continue to grow rapidly: by 15 months, babies are able to show

persistence in completing multipart tasks, combining tasks such as a form board or a shape sorter, and figuring out tasks such as lock board or using a cash register. When toddlers reach 24 months of age, they can recognize adult standards and are able to self-correct some of their actions. By 36 months the early developer prefers challenging tasks when given a choice between relatively easy or more difficult tasks.

The path of motivation to accomplish tasks lies in the ability to recognize and engage intrinsic motivation, which is generated through play. It is only through the development of intrinsic motivation that the discipline of extrinsic rewards can actually have emotional meaning for the child, which then drives the willingness and need to please themselves and others. In the absence of emotional meaning, most extrinsic reward systems have to rely on cognitive understanding, which inevitably becomes difficult to generalize; further, extrinsic rewards that apply to specific situations always have to be presented in a rigid, specific way. Embodying learning through the emotional system, which feeds associative learning in the hippocampus, is what creates generalization of skills. This is why learning through play holds the power of integrative learning, a learning that cannot be “taught,” but has to be experienced.

In occupational therapy practice we are mostly familiar with object play in early childhood. We consider both stationary play and moving with objects, using them to explore the environment. The negotiation of space is an important component of this exploration (and is very different from using space to avoid relationship or “hanging out” in the periphery of a group while observing quietly). Atypically developing children frequently lack this exploration in their early childhood, and this deficit continues to affect them later in life: for example, when they are expected to complete purposeful action with a pencil, the tool feels foreign and their curiosity is not piqued. So let us consider the sensorimotor developmental hierarchy, and the impact each level has on the motivation and ability to play.

The Sensorimotor Developmental Hierarchy

The baby’s first developmental need outside of the womb is to conquer self-regulation: to be able to self-soothe in times of challenge and trouble. This developmental milestone, as described above in the context of emotional processing, depends on the autonomic and central nervous system. If the sensory systems are not feeding information to the baby in an adequate registration and processing pattern, this causes physical insecurity, which also impacts on emotional security, upsetting the ability of self-control and emotional inhibition later in life. Children who struggle with this achievement have difficulty contending with what is going on around them, as they are hyper-focused on their own body and its need to gain control in the environment. This disenables the baby to get ready for the important work of object play and developing motivation and curiosity, as they are using all their energy to contend with themselves. Those who are able to explore objects struggle with moving beyond sensory exploration, which creates difficulty growing into initiating purposeful action with objects. While we have all observed this limited exploration with children on the autism spectrum, you can see less extreme cases of the same “lining up” of toys in children with no diagnosis. Their development has not moved beyond sensory exploration, even though cognitively they are able to do so much more.

The next phase of development encompasses motor skills. Primary movement patterns make way for homolateral, cross lateral and more complex movements that are under the babies' voluntary control as they start to crawl, creep, and eventually walk. As the baby climbs the trajectory of milestones such as rolling over, sitting up, crawling, cruising, and walking, the different movement patterns continue to refine the integration between the sensory and motor systems. For example, crawling (body extended against gravity in movement) is not only important for developing bilateral skill, but also for postural control: the balance between the flexor and extensor systems is a crucial building block for later sitting at a table or desk for an extended period of time. The child's motivation and curiosity drives the motor learning. If they want a cookie from the cookie jar on the top shelf, they have to find a motor plan to conquer this feat. If they want to put a large pizza in a small oven, they have to figure out why it is not working and what they have to do to adjust the situation.

All this problem-solving occurs both cognitively and motorically, hence the balance between the two systems is crucial for integration. When later the child has to write a sentence on a line, they are able to figure out staying on the line, spacing between words, letter sizing, and all the other aspects that teachers like to see. Likewise, when I reach for my coffee, I do not have to think about how I am going to achieve it, I simply go through the step sequence automatically, while I am thinking about what next to write. Motor planning, or praxis, supports the achievement of creative ideation. If you try to "teach" praxis, you only tap into the cognitive arena: the child may be able to have an idea, but cannot come up with a motor plan to achieve it, and does not persist to see it through. Children who struggle with aspects of dyspraxia frequently avoid the very thing that will provide the experience to gain it: play! Parents will tell us that their bright child never really played, except if you consider his excellence in computer skills and video games. The latter is driven by cognitive ideation, planning, problem-solving, all of which are strengths for children with dyspraxia. They can use their minds with complexity, but they are unable to "play out" a step sequence of their own creative stories. This is why writing their own story is a painful experience compared to simply telling you their story.

Another complexity to consider in developing praxis skills is the development of abstract thinking and visualization, of which visual spatial skills are an important building block. We've previously considered representational play, which is built on imagination, creative ideation and the ability to use abstract thinking. If the child can visualize a car while pushing a wooden block, this representational thinking sets up the ability to consider ideas even when the concrete evidence is nowhere in sight. If one adds language to this building block, representational thinking can be observed initially in the child's ability to handle nuances, sarcasm, the hidden meaning of what is said, and eventually in their attainment of reading comprehension and their ability to form pictures in their minds that go beyond the specifics described by the words they read. This ability to visualize is a subconscious skill, an automatic skill. There is no curriculum that can teach visualization, but playing in the representational and imaginary world creates this ability from within. Abstract thinking is also what makes the difference between having empathy and cognitive flexibility, as opposed to being concrete and unable to see beyond the moment, eventually becoming rigid and restrictive in social experiences, and likely being labeled "controlling," "bossy," and "inflexible." In developing empathy we have two aspects to consider. Cognitive empathy utilizes the intellect and possible language formation to understand the concept of "another point of view." Emotional empathy comes from the limbic system, born

of multiple associative experiences in early development that embody the concept on an emotional level.

Children who experience poverty in play and social experiences will show difficulties in the abstract formation areas mentioned above. In play – using their bodies in creating their ideas, following the ideas through their own self-generated steps, manipulating objects in both concrete and abstract ways, while also including movement and space – they are actively working on creating the integration between these multiple levels of growth and development. As such, it bothers me greatly that many preschools are focusing more time on curriculum and less time on play, seeing it as “frivolous” or “recreational.” Developmentally speaking, by so doing, they are putting the cart before the horse. The curriculum that teaches a child the ability to look at the teacher and hear them at the same time – that confirms that the cortex actually perceives both the visual and the auditory messages at the same time – does not exist, but without this integration, it is difficult to sustain attention for any length of time. The integration between vision and auditory happens in play. The timing between doing and talking at the same time happens in play. The ability to pair gestural communication with verbal communication happens in play. The fact that any of these areas are complex does not make it any less true. Asking a child to maintain higher levels of engagement and sustained attention in these earlier years, without doing the time in play to practice and support the sequences necessary for extended attention or multitasking, actually prevents the creation of working memory for learning.

A final developmental stage to consider before executive functions can really fall into place encompasses bilateral integration (the left and right sides of the body working together, even though each are effecting a different motor plan: for example, snipping with scissors), laterality (understanding the concepts of left and right, which has a strong impact on both sound reversals in language, and letter and number reversals in writing: for example, playing “Simon Says”), and directionality (finding your way in a new and novel environment: for example, participating in a treasure hunt). As the early learner grows, so do the play preferences: via school, the exposure to playground games, sport activities, and PE all lead to experiences that foster emotional growth within a larger community, a sense of belonging, and a sense of “fitting in.” In order for children to participate successfully in these activities, certainly the attainment of postural control plays a big role. But bilateral integration, laterality, and directionality are just as important: physical strength may not be necessary, but a sense of direction, the ability to catch a ball, the coordination necessary to do jumping jacks, etc., are. And, within a discussion of deficits in any of these areas, we have to consider also the emotional impact of always being the one who is “letting the team down” – not being able to keep up with peers in arenas ranging from playing sport to socialization.

Social Developmental Milestones

Finally, we’ve referred briefly to the shift from family-oriented play to peer-oriented play that occurs during sensorimotor development. Let’s look more closely at social developmental milestones in typical children, and the play associated with each.

From 6-8 months infant-to-infant interactions are on the rise. Between 9-12 months, babies will respond differently to children than to adults. At 12 months, contacts with peers tend to center on an object such as a ball, shape sorter, or larger puzzle.

Between 15-18 months toddlers engage in simple actions with contingent responses between peers. At 18-24 months they still spend most of a group time in solitary activity, but they are also watching the other children. Interactive sequences now become longer until role sharing and turn-taking are evident.

From 24 months the child engages in intense watchfulness of peer situations, and also starts imitating their peers. They can be observed to watch, point, and take toys from other children. Between 24-30 months, parallel and non-interactive play predominates in peer situations. However, the development of interactive play overlaps this time period: between 24-48 months aggression may increase, but also quickly declines and typically negative interactions do not exceed positive interactions. It is only by 30-36 months that the child becomes capable of playing well with two or three in a group, and associative types of play dominate.

By 36 months the child will play spontaneously with other children in complicated verbal communication, and also show increased interest in rough-and-tumble play. From 36-48 months the child begins cooperative play, and group play replaces parallel play steadily over this time period.

After 48 months the child prefers to play with other children rather than playing alone, unless engrossed in a new and novel activity they are figuring out for a first time. From 48-about 60 months, peer interactions are characterized by talking, smiling, laughing, playing, and engaging in group games with simple rules, while also showing concern and sympathy for others in the group.

From 60-72 months the child demonstrates an understanding of the rules of fair play, and begins to enjoy participation in competitive games.

Emotional Themes in Play

We've considered developmental milestones as related to attachment profiles, as well as the impact of sensorimotor development on play and vice versa, and the importance of representational play – symbolic play – has come up again and again. We're going to look more closely at several emotional themes that emerge in symbolic play, but first, let's ground the discussion in a review of the separation-individuation process, and get a clearer idea with regards to this foundation of the developing psyche.

The Separation-Individuation Process

After those first important months learning about the world in and through mother, by about 5-8 months the baby can show active differentiation of strangers, and at 6-8 months, recognize themselves in a mirror. The baby can show a special dependence on mother, wanting food, attention, stimulation, and approval, by about 7-8 months, and until about 10 months, can show a mild to severe anxiety at separation. Between 10-12 months, the shy period passes, and they are eager to go out into the world. As they enter the second year (12 months) they are able to distinguish themselves from others, react sharply to separation from the parent, and react to others' emotions.

As the 12-15 month marker begins, the baby tends to use their mother for emotional “refueling.” By 15-18 months they are moving away from their parent as home base into a widening world, but are frequently observed checking back in with the parent and bringing their toys to share with the parent. A sensitive period arises between 18-24 months, as they demand the proximity of a familiar adult, and are alternate between clinging and resistance. Their “cuteness” grows as they refer to themselves by name.

As the second year begins, they are becoming quite conscious of their own acts and how these acts relate to adult approval or disapproval. By 24-30 months they go through another phase of being shy with strangers, especially adults, and may be observed to hide against the parent when introduced to strange adults. They make constant demands on their parent’s attention and cling tightly to the parent in affection, fatigue, and instances that are fear-provoking. From 30-36 months, they can recognize themselves in photographs, and start understanding the needs of others.

From 36-48 months they develop the ability to answer whether he/she is a boy or a girl. They can separate from the parent without crying, and join other children in play.

Finally, by 48-60 months, they complete this first journey of coming into themselves. They can explore their neighborhood unattended, and experience a strong sense of family and home, quoting their parents as authorities. Their personal and family identity now feeling secure, they can embark on the next journey in becoming a “big boy or girl.” As this coincides with having developed the foundation for executive functioning as well, this makes our young one ready for the more complicated world of academics and social interaction.

Emotional Themes in Symbolic Play

As children work through the last phases of the separation-individuation process, between ages 2-4 years, there are common emotional themes that come up in their play. As therapists, we should be aware that this play can be intense: children need to feel this intensity in order to make sense of it. We must not be afraid of their intensity, and we should resist the urge to stay in control of their play, as doing so may interfere with the process. The reality of the situation being explored in play is frequently too harsh for children, leading them to avoid the feelings it causes. This suppression is not healthy, as all emotional experiences need to be worked through to achieve the regulation and emotional inhibition needed in executive functioning skills. Thus in general, when the child is working through an emotional issue in play, we should stay in play mode.

The first theme that usually emerges is *Nurture and Dependency*. Therapists will observe children dressing a baby doll, feeding the doll and, carefully laying them down to sleep, pulling a blanket over them, for example. This not hard to understand: children are developing a growing sense of self, and they need to understand where they come from in order to work on the next step. They also have been witnessing their parents’ care and nurture for the past 24 months, so incorporating it into their play forms a familiar scaffold into the deeper symbolic dimensions. In practice, even when children have moved on, we witness them returning to this theme in the face of strong challenges and/or when they feel emotionally overwhelmed. This may be viewed as

“regression,” but should also be considered a preparation phase for the next level of growth: they are gathering the courage to undertake the “risk,” and the energy they will need to persist and succeed. (Children with developmental delay will frequently revisit this theme upon the arrival of a new baby in the home as well, especially if they have not completed their separation process.)

As we’ve discussed previously, the theme of *Curiosity* also appears in play. As children increasingly tune in to the outside world, they start playing games that involve looking for things, searching for hidden treasures, exploring new spaces. They might return to this explorative phase as they synthesize additional details about objects and their purposes, adding understanding that they missed during previous explorations. It is important to allow time for these renewed efforts of exploration, especially with new and novel tasks/objects, and not expect them to result in functional application right away.

Power and Assertiveness is another common theme that can take time to work through. All children feel powerless in the world initially, and children with special needs even more so. Play provides the safe space to work through these feelings. When the child picks up a cape, wizard hat, and magic wand, they suddenly have the ability to change anything they would like to change. They frequently will put others in jails, dungeons, and such like as they work on feeling the rush of this kind of power, until empathy starts to build and they begin to understand what their power does to others.

Play also creates a safe space to explore the potentially destructive theme of *Anger and Aggression*: children need to experience anger in order to deal with it in an acceptable way. They might act out situations where they saw abuse or experienced corporal punishment in anger; alternately, they might simply need to work through their experience of evoking anger in a loving parent. Children view their out-of-control behavior as “bad.” For those with multiple experiences of feeling out of control, the identity of a “bad kid” becomes a habit, and also a source of growing anxiety – they do not want to feel out of control anymore, but they are unable to prevent it. Even this thought cycle can set off the downward spiral of losing control. This theme can take a long time to work through, especially for children who have been labeled the “problem child” in the home, and perceive their identity to be “the one who is always causing trouble.” (With this theme in particular, it can be helpful to own these emotions ourselves. When we become “frustrated” and “mad” at a situation, we frequently see children stop in their tracks and look at us in amazement. To know that one of your favorite adults also can get mad is a great source of relief, and an affirmation that though they may be exhibiting “bad” behavior, they can still be a good boy or girl.)

Fears and Anxieties is another theme that frequently appears in play, based on the common anxieties that children feel during their developing years. In particular, fear of separation (death and dying), injury, and catastrophe are common features in play. Characters in their dramas can die “forever and ever,” only to be resurrected again, or they may play out monsters that visit them in their dreams. The ultimate fear is the loss of a loved one that is relied upon to be an anchor through these tough days of early development. Due to the fact that children are still learning the difference between reality and fantasy, these fears become much larger in the

developing mind than reality suggests. Using play to work through them with a safe play partner like a therapist can reduce them in size.

Love, Empathy, and Concern for Others is a theme that appears in play as children navigate the journey from centering on only the self to becoming more others-centered. Feeling another's pain, sadness, and joy, being aware that these may contrast with your own emotions, and learning to consider both is a huge milestone. As the child begins to feel comfortable relating with others, his capacity to feel love and empathy will continue to grow. This theme in particular may frequently rely on role-play, particularly when a child struggles with sensory processing challenges. We must not assume that empathy is not available, as the need to take care of the self trumps any availability to others in the environment. Instead, we begin role-play with familiar characters, and gradually increase flexibility within those characters – for example, using a different voice tone. As children become comfortable with a role and feel the power of the character, we would encourage the switching of roles, which in turn encourages empathy and flexibility in thinking.

My personal favorite is the theme of *Control*. We all know children are fighting for control, and against losing control, which is why this theme gets a lot of attention. What the child cannot control in real life, they will sometimes make up for in play; we need to create the space where they can do so in order to know the child's process and progress. During play related to this theme, the child will want you to know that "he/she the boss!" We should become whatever they want us to be, with the only rule being one of safety for both of us.

In all of these themes, risk-taking behavior is a good stepping stone to a feeling of being in control. Above all, it is important that the child be free to express it in the safety of pretend play. We must validate the play, even when the child is getting quite intense with it. But how does discipline feature in this play? And what about limit setting? We will discuss both in the context of intervention guidelines.

Assessment and Intervention

Assessment

Assessment is a critical part of the intervention process – and it's all too easy to get off on the wrong foot.

When we assess a child, are we assessing specifically for that child's situation, or do we simply use the assessment battery available to us? Do we see the child beyond the surface? Do we "chase the why" of their behaviors? Is our goal about changing their behavior, or is it to help them develop into a single persona with an individuated sense of self that will provide them with self-esteem and intrinsic drive to overcome challenges with resiliency and productivity?

Of course, today's occupational therapist is often under time pressure, urged to be "fast" and provide a "quick" evaluation. I and my practitioners have refined our process over time to establish a protocol of two hours direct assessment, after which we need additional time to score,

write, and analyze the data. While this is longer than most school or medical systems provide, we usually find ways to work it out: I emphasize that using three or four “treatment” sessions over a month period to complete a thorough assessment allows me to be more clear in my contribution to the team as well as target my intervention more successfully, which makes up for any perceived “loss” of intervention time. This will be an ongoing conversation, and something you need to negotiate with each child’s team.

Too frequently I review evaluations from occupational therapists that thoroughly reflect what they know and observe, but don’t strive to go beyond that. The child’s behavioral profile is usually mentioned, but the evaluations fall short of linking the behaviors to the profile of the child and explaining the “why.” I also note the tendency of some occupational therapists to almost “judge” the behavior, as if it somehow is one area in the profile of developmental delay that the child has control over. Descriptions such as “Tommy’s behavior is rigid and inflexible” are frequently shared with the parent or teacher, in the conspicuous absence of explanation as to why he needs to exert this behavior. Hearing these descriptions, they over-focus on the “wrong” behavior without fully understanding that it is need in the child that drives this behavior.

Let us consider a common example. If a child is displaying frequent emotional meltdowns, especially when things are not going their own way, there are a number of ways to understand this behavior.

A: The child is being willful, manipulative, bossy, and rigid and is using the behavior to remain self-centered and get everything her way. She does not want to please others, only herself, and has no empathy for the impact of her behavior on her family and/or classmates.

B: She has experienced trauma in her life, and due to these experiences has never felt emotionally secure in relationships, possibly perceiving herself as “unworthy” of love and nurture. Her subsequent avoidance of emotional experiences has led to a suppression of emotions rather than developing them fully, and becoming “out of control” when faced with a challenge.

C: She was adopted and, due to the loss of her first mother, felt rejected and not worthy of care. This created mistrust in herself and others, which affected her sense of autonomy and ultimately led to an increased need for self-protection. Her behavior may have become a spiral of “proving to herself” that she was “right” in her expectations. In addition, there could also be a component of emotionally regressing to an earlier phase of testing the boundaries at all times influencing her behavior.

D: She may be reaching her sensory thresholds far too quickly, and not creating an effective adaptive response to the stimuli provided. The over-arousal is making her feel out of control.

E: She may not have developed her emotional milestones alongside her cognitive abilities. Parents and teachers are expecting her to “behave” at her cognitive level of

understanding, while she does not have the necessary emotional maturity to cope with the demands. This mismatch causes great frustration and anxiety, resulting in meltdown behavior.

F: She may be struggling with praxis difficulties: even though she can cognitively support the ideas and thinking necessary to take on a task, she cannot control her body to follow through in a timely manner. This creates an inner conflict, which results in performance anxiety, ultimately giving way to meltdown behavior.

Of course, as I write multiple children come to mind – and there are many more combinations of the above. We need to be open to all these different possibilities, and “chase the why” before we can really plan our intervention. It is vital that we consider and convey both the “what” and the “why” as we assess. Our assessment is the signature of our work, and shares what we know with each child’s team. If our assessment is lacking in explanation, the team will also experience a lack in dealing with it. With that in mind, let’s look at some assessments that, in my experience, yield both “what” and “why.”

To examine how sensory modulation may be affecting a child’s behavior, I and my practitioners use Winnie Dunn’s Sensory Profile. Of course, anyone can score a questionnaire; thus professionals who are not trained in sensory processing can also use the Sensory Profile. But this is where our clinical judgment makes the difference. Even though this tool has been found to have strong validity, it remains a subjective tool. The depth of its usefulness lies in the analysis of each item, using your knowledge of each child’s sensorimotor history (more on this topic below) as well as your own clinical observations. If, for example, we find that the teacher has scored the child very differently than the parent, it does not necessarily invalidate either response: there might be very good reasons why the child is showing different profiles in different settings, and contradictions such as these beg clinical explanation, not judgment. If our critical analysis is that the emotional system (trauma, attachment) is driving the sensory adaptation, this will certainly influence the intervention plan and outcomes. To take the example further, if we see that a profile is predominantly hypersensitive and avoidant, and we also see that this child is chewing on everything (shirts, nails, etc.), we may first think of using the deep pressure protocol of Pat and Julia Wilbarger. But if the child’s system is being extra heightened due to their ambivalent or avoidant attachment profile, utilizing only a sensory program will only provide temporary relief, not produce the long term effect we’re looking for.

An extensive sensorimotor history is a strong support; also, parents can work on this on their own time, leaving your time free to complete different assessments. We have designed our own sensorimotor history questionnaire, which contains extensive questions on the child’s background and early experiences from pre-birth to the present day. Its value lies in the information it provides, yes, but also in the preliminary exposure it gives parents to self-reflection: it supports our ongoing training of their mindset to consider different possibilities.

In terms of sensorimotor assessment, we use the Peabody Developmental Scales to assess motor functioning for the pre-schooler and the Bruininks-Oseretsky Test of Motor Proficiency for our older students age 5 and up. We usually do not have the time to complete the Sensory Integration and Praxis Test (SIPT), but we do use some components, especially the tactile and/or

praxis battery. For pre-schoolers we like to use the DeGangi-Berk Test of Sensory Integration. Between these four tests, one can gain a good understanding of the relationship between the sensory functions and the motor functions, and how each may be contributing to the behavior.

The Listening Inventory (TLI) is a good parent questionnaire that we use to examine the influence of the auditory and language systems. This is helpful in referring to speech-language pathologists, as the child's success in listening and using receptive and expressive language skills may be another influential factor causing the meltdown behavior discussed above.

Some children are referred to us for handwriting difficulties, but upon further investigation, the situation is far more complex in terms of the behavioral profile. We do the Wold Sentence Copying Test (1st to 8th grade) as a quick screening, as it gives information in several areas such as speed, legibility, pencil grip, copying skill, letter formation, spacing etc. We have other assessments, but in cases of extreme behaviors we do not want to spend too much time on handwriting area, as we have other aspects to consider. We do, however, want to speak to the initial concern of the referral, and this is a helpful tool to do so. In our clinical analysis, we address the fact that simply working on handwriting and working around the behaviors will not change these children's situations. We need to address the core issues as to why they developed the handwriting difficulty in the first place.

The Behavior Rating Inventory of Executive Functioning (BRIEF – pre-school and school age version) is an accepted tool for OTs to use to extrapolate the impact of both sensorimotor and emotional development on executive behavior. It allows parents and teachers space to reflect, while providing the therapist with information as to the specifics of additional triggers in relation to the child's profile. For example, if we know a child's working memory is not functioning up to capacity, the results of the BRIEF might point us towards investigating the timing between his auditory and visual system to ensure that both systems have adequate processing speed to create a larger capacity for working memory. Or we may unearth that the child's praxis difficulties are causing further difficulties with sequencing, making it difficult for her to follow multi-step instructions.

The Beck Youth Inventory for children and adolescents (7-18 years) is a good self report questionnaire with high validity that can provide insight into the child's own view of themselves.

For socio-emotional information we also turn to the Pediatric Symptom Checklist (ages 2 to 5; 6 to 16), which is freely available in the public domain.

We often find projective techniques to be helpful in understanding what is happening in the child. Be aware that with these techniques there is much room for assumption, which may not be helpful to the child's situation. I recommend training in these techniques prior to using them; in addition, projective techniques should always be analyzed keeping in mind what you already know about the profile. We might use Dr. Art Becker Weidman's Heart Drawing (3-19 years) or the HTP (house-tree-person-test).

Finally, we also need to bring parent profiles into the picture, as it is very difficult to target behavioral intervention, no matter the "why," without also working with the family as a whole.

We use the Parent Stress Index-4 (birth-12 years) to gain additional parent self-reflection, open conversation with regards to parenting skill and parenting self-esteem, and a groundwork of full honesty as our partnership moves forward. Please note it is not in our scope of practice to become a counselor or family therapist, and we can never be “everything” to a parent, but we can listen, determine if there is support we can offer, and assist the parent through difficult situations with emotional support and practical advice. As our relationship grows and discussion becomes more personal, it could be very beneficial to pull in another member of the team, whose scope of practice would be better suited to addressing any counseling needs.

Intervention

Once a thorough assessment is completed, we are far more ready to embark on an intervention plan that includes strategies that address not just the “what” but also the “why.” The intervention programming my practitioners and I use takes place over three phases of development. (Note: our program trajectory might sound quite intense to those used to the once-weekly format that has become a standard practice of care in most instances. I’ve found that combining weekly services with intensive spurts of 2-3 hours per day over two weeks are far more effective in the short run, if families are open to this model of intervention.)

During Phase One, we start with sensory modulation/emotional regulation. This consists of a mixture of occupational therapy services, DIR/Floortime®, sound therapy, and sandtray work. In the OT sessions, we usually focus on tactile massage (www.svetlanamusgatovamethod.com), reflex integration (potentially including rhythmic movement patterns), and postural control. The DIR/Floortime® approach is included whenever we need support in socio-emotional developmental delay. In the sound therapy, we mostly use the Tomatis® method (www.tomatis.com). While we are trained in multiple sound modalities, we find this program to be more concise and holistic, while also more intense with higher frequency, affording us the ability of working on multiple goals simultaneously. Finally, sandtray work is a great projective technique for understanding symbolic and emotional development, allowing us to get glimpses of how the child is going through the different phases, and if the emotional system is “keeping up” with the changes occurring in the central nervous system. It is a complicated system that requires lengthy, sophisticated training.

Throughout Phase One, we make strides towards calming the autonomic nervous system, leaving and children more grounded and available. As we move into Phase Two, we shift focus somewhat, moving to working through aspects of skill and maturing the socio-emotional system. Phase Two usually consists of another combination of occupational therapy services and sound therapy, though we often add Interactive Metronome (www.interactivemetronome.com) for motor planning, sequencing, and timing; it’s also good for children who have difficulty with impulsivity. We would frequently refer to speech-language pathology during this phase as well. Most children who are struggling with emotional development will also continue with DIR/Floortime® and/or sand tray work. Remember, as we’ve discussed, takes longer to create the adaptive response to the emotional system than it does to affect the adaptive response in the sensori-motor system. This can be clearly observed in pre- and post-testing. Children may improve greatly on standardized tests, yet some of their frustrating behaviors are still present. Of course, some kids are just “ready” and both strains of development go well alongside each other,

but others have a need to work through the “out-of-control” periods of the past and replace those older limbic memories with more successful experiences. This process cannot be rushed – we need to give them the time they need.

Phase Three targets the executive pieces that have been affected by the sensorimotor and emotional developmental delay(s). Depending on the profile, we may be working on building blocks to reading through the ReadOn program (orangeneurosciences.com), or we might work on writing and/or written expression. We frequently will continue working on socio-emotional skills, and may add siblings and/or peers to the sessions to assist the adaptive response to multifaceted peer interactions. During Phase Three, even though we have come far, children may still struggle with residual performance anxiety, especially if they continue to underperform at school. Their lack of skill triggers the older feelings of feeling out-of-control, so it becomes really necessary to gain as much skill as possible. Thus, working alongside other professionals is very important in Phase Three. In reading and written expression, for example, the speech-language pathologist is an important working relationship with us; in cases of trauma, it is important to work with the counselors and play therapists that understand “attuned” work. Likewise, we need to have more frequent contact with each child’s school teams during Phase Three, to ensure that their achievements are being generalized to the school environment.

A quick word here about social skill groups: I am not fond of this practice. You cannot separate social skill from emotional skill. “Teaching” social skills with their myriad different nuances, to children who may not have the emotional development necessary to support them, frequently relies more on rote, long-term memory learning rather than integrative learning with meaning. I would rather work on the emotional developmental milestones first, giving the child access to deal with a one-on-one safe relationship, and then add one peer or one sibling. Once children can work through this level of interaction, they frequently have already shown improved relationships in school or leisure activities.

So which pieces of the puzzle impact the socio-emotional profile in general, and benefit those children affected by trauma in particular?

Floortime Techniques

In the DIR/Floortime® model of training, we practice a number of Floortime techniques that are really important no matter what part of the intervention program is taking place. Let’s take a look at those here.

We do not “enforce” task demands on the child; rather, we find a “back door” related to activities that may be of high interest to them. If they like Pokémon, we will add Pokémon to our reflex integration exercises.

We are more process-oriented than task-oriented in our approach, and we continuously consider the child’s relationship with us as key to gain trust and stability in order to mobilize the child into gentle risk taking behavior. If a child moves away from us, we would not ask them to come back to us, but “woo” them back through using high affect and warm, accepting emotion that would entice them to make a decision to return. We validate any initiation coming from them for the same purpose.

We want to enable the child's own natural instinct and drive to use their own intrinsic motivation to move towards curiosity and new learning. For so many children new and novel experiences have become the "enemy" and are to be avoided, which causes them not to have the very experiences they need to prosper and grow.

We start the process always by matching the child's speed, mood, and choice of activity, and then we slowly scaffold the intervention into increasing the challenge at a pace they can follow and not feel overwhelmed. We need to be careful that we do not cause them to be triggered by past experiences, which will inhibit their process.

If they ask us for help, though we do not reach out to assist, we frequently commiserate with them, saying something like "I know, it does not work!" in an empathetic manner. We certainly "feel" with them, but we do not do for them what they have to do themselves.

Sometimes the tried-and-true method of "back chaining" is very helpful: we may work with a child to solve a problem at first, and then slowly withdraw during the final sequence of steps.

If they love to do the same activity over and over (due to a strong need for predictability as they may not understand sequence very well), we can use "playful obstruction" and get "in their way" so to speak, requiring them to deal with us, our relationship, and solving the "problem" we created.

Involving the Parents

A very important factor of intervention to consider is the involvement of the parent and/or caregiver. Parents become trained by professionals to focus on what the child is not doing or unable to do. We find that "un-training" them in this process is a great relief to most families. Our emphasis with parents is to support them in finding the right "attunement" with their child; to connect rather than correct, and to find joy in their relationship with each other.

We invite caregivers to come into sessions with us. Of course, just as there are a variety of different children's profiles, there are a number of different parent profiles! Some love to talk with you during the intervention: we make a point of training them that during the session all the focus should be on the child, and invite them to come onto the floor with us.

Some parents will not come to the floor, but will watch until they relax enough to be drawn in. Others initially feel some anxiety and make statements such as "I never played as a child," but they frequently become our best players once they're released from their own fears and realize there is no judgment here, only acceptance. They also like to see when we "mess up" and cause a meltdown, relieved that they are not the only ones that can "mess up!" We focus on helping them to reframe their perceptions: we are not defining them as lacking in parenting skills, but rather helping them to understand what level of challenge would be most appropriate to present to their child – to prevent frequent occurrences of power struggles.

We start our work with new families with the overarching notion that we are on this journey together, and that we are going to need each other's knowledge to see the child through. Once a

parent understands these relational pieces, our next targeted goal for parent training is to gain their understanding in focusing on “how” rather than “why” in intervention. “How” implies the need to address sequence, which involves both body and mind. This is different from “why,” which leans on the cognitive realm – giving some children the opportunity to side step needing to consider motor planning and step sequences, whereas other children may be unable to turn their attention from the needs of their bodies long enough to deal with the question, and become overwhelmed.

Our goal is to make parents and/or caregivers co-partners in the therapy, which eases their concerns and also enables them to see what possibilities could work for them at home. (There are some exceptions to this, the most obvious being that our long distance clients might not be able to join us for their child's weekly therapies. In this case we can support them at home, or communicate with their hometown occupational therapist.) Our parents are rarely given a formal home program of activities; rather, we focus on techniques they could use in everyday life. For example, most children with emotional developmental delay do really well with the tactile integration massage technique mentioned earlier, so we train families in a home version to complete once in the morning, and once in the evening. This is not only helpful for both sensory modulation and emotional regulation; it also enhances the intimacy between the parent and child. The parent feels empowered with a technique that has specific steps and gains the reward of the child's recognition of her effort, and the child's heightened sensory thresholds get a much-needed break and experience the calm of the parasympathetic system. Likewise, we ask parents and/or caregivers to play a game or favorite activity with their child five nights per week for 20 minutes, the only rule being that the parent is not allowed to speak, though the child can. Even though they think it is strange at first, it really helps them to focus on the child's body language, creating increased awareness of what their child is capable of doing. In addition, the fact that the child is now in control, faced with limited task demand, creates a wonderful place of enjoyment for all. Parents who follow through frequently come back after two weeks and exclaim about the “new” things they found out about their child.

Opening the Symbolic Door

Earlier, we referred to symbolic themes in emotional play. While a full discussion of symbolic emotional thinking is beyond the scope of this course, I'd like to return to one important principle: opening the door to symbolic thinking. In a therapy session, we frequently become the catalyst to children working on their relationship with both their parents, as they seek to individuate in order to separate into their own self-identity. Due to our warm and trusting relationship, they want to work on these relationships with us as a “safer” option, rather than dealing with parents in reality – in other words, through fantasy, in their emotional mind's eye we become their mothers and/or fathers. (There's a sensory component to this work as well: the ability to visualize in the mind requires the development of visual-spatial thinking; if visualization is not developed, it eventually impacts social perspective-taking and empathy, as well as listening, reading comprehension, and written expression.)

Note: to facilitate and participate in this process, you as the therapist have to be open as well. Going on imaginary flights of fantasy might not be natural for every therapist out there – it's important to recognize the strengths and weaknesses within our own therapeutic sense of self.

Opening the symbolic door can start in many ways. For example, an easy enough prop to have in the therapy room is a variety of different hats: you can “become” another person simply by wearing a different hat, opening the door to all kinds of possibilities. On the home front, we encourage parents to read stories to their child, as well as providing favorite story or video characters for their children to play with outside of story time. In therapy, we may start to add these favorite characters to the child’s already-favored activities in which they demonstrate high interest. If they initially discard or ignore the characters, don’t give up: for some this adjustment is really hard and they need time to make it. Other children may gravitate quite readily to playing with the characters from their favorite story, but, due to sequence difficulties, prefer to follow the exact story sequence from long-term memory. In these cases, we can use gentle, playful obstruction (emphasis on “playful”) to disrupt the story sequence so that they have to negotiate around the disruption: even if the child avoids or negates it, the nervous system had to contemplate it. After allowing status quo for awhile, we would try a different playful obstruction. Be aware, however, that in cases of trauma it may not always be a good idea to use playful obstruction. Instead, we need to allow these children to work through their trauma within their own understanding and timing; our playful obstruction may actually interrupt their process. In addition, as they tend to be very harsh critics of themselves, they may perceive an obstruction to mean that their idea is “wrong” or “not good enough.” In such play sequences, we frequently become quiet, remain present, and act as a witness of the child’s process.

Once the child is ready for symbolic thinking, we request that the parents read them the original versions of popular stories such as Snow White, Hansel and Gretel, and many others. Many of these stories contain the very themes children struggle with in typical emotional development, including the “loss” of mothers; they also feature heroes and heroines that have to overcome adversity to gain the “happy ever after.” The stories expose children to these themes and demonstrate that they can be overcome. The message is that you are the hero of your story, and if you persevere and overcome your developmental challenges, there will be a reward in the end. We ask that parents not interpret the stories for the child in any way: first, they do not know with which parts of the story the child most identifies; second, an interpretation provides the child with another reason why they should “stay” with the parent – they need them to explain their journey. Likewise, many of these stories also deal with death and dying, another important emotional theme; we ask that parents not succumb to the need to make it “okay” for the child. Allowing the child to experience fear from the safety of the parent’s arms creates the stability that enables the child to learn about and process these feelings.

The Meltdown Recipe

Each individual profile is unique with regards to strengths and weaknesses – and when an individual has experienced trauma, strengths and weaknesses can become even more pronounced. Even though a child is undergoing intervention, frustration and anger will continue to rear their ugly heads while the child works through the process of settling into a different space and feeling more emotionally secure in the ability to self regulate. Since the family tends to be over-focused on “behavior” initially, and these occurrences cause stress, it is important to provide a plan to deal with these challenges along the way. Over the past ten years, I’ve developed a protocol, based on the collective work of all of the familiar names we’ve considered earlier in the course, that our parents have affectionately dubbed “Maude’s Meltdown Recipe.”

As we continue to share this protocol across the globe, it has come to have a life of its own. We ask families to use the protocol whenever they see the behavior starting to escalate.

Note: at the earlier stages of implementing this strategy, we must expect the child to fight the “change,” as they will be uncertain of anything new and novel. No doubt the parent has tried multiple different strategies before, which may have seemed inconsistent to the child, and will reflect negatively on this strategy too at first. Consistency is key to this strategy; if the process is not seen through each time, it will contribute to the child’s anxiety as they become insecure as to what to expect.

The first steps have to do with being prepared and ready. The parent and child are asked to identify a space in their home that could become a “safe space” for the child. The child is also asked to identify a few comfort items that will stay in this space for times of need. Both parent and child must view this as a space of comfort, not to be associated with discipline or “time out.” The child may choose to access this safe space whenever they like. They can also create their own unique name for this space.

After that, whenever the child is escalating towards (or already in) a meltdown, *only one* parent or caregiver should request that the child to go to their safe space. If the child is younger, it is fine to pick them up gently and take them there, or take them by the hand to assist them there. It is quite important to maintain as neutral a voice as possible, and to use minimal language. This is often difficult for parents, as they are already anxious and want the behavior to stop immediately. To counter their anxiety, we spend time in parent training to explain that the behaviors are rarely a reflection on their parenting skills, but have much more to do with the child’s own inner turmoil. (Mothers are especially prone to get the brunt of these behaviors, as the child wants the mother to step in and take care of the situation emotionally, even when the child may be verbally abusive towards her. It is a reflection of that “inner war” we discussed earlier, during which the child is angry at the mother for the child’s own need to separate in order to individuate.)

Once both parent and child are in the safe space, the parent requests calmly and warmly that they stay there until the child is “ready.” (At first they may not know what “ready” means, but after the first few times they will have a better understanding of this concept.) The only other words that should be used assure the child that the parent will stay with them until they are ready: use a soothing voice to convey the simple message “I am here.” The parent sits down with the child and does not touch the child, unless he/she tries to get away from the safe space. Eye contact is kept to a minimum, as for some children it becomes too emotionally overwhelming, but the parent can certainly look in the child’s direction with fleeting glances.

Let’s break down why we’re doing what we’re doing. Daniel Siegel talks about “time in” vs. “time out.” Since the parent is the child’s secure base, it is important that this anchor is not removed in a situation where the child is feeling out of control. So we’ve created a space where the parent is “into” the child and emotionally available, conveying to the child’s psyche that they are not alone in their struggle, and also giving reassurance with their very presence. The ambiance here is exactly the opposite of “ignoring” the behavior. It is important to keep the language at a minimum in this safe space, as language drives the logical brain, which is not always available in times of emotional stress. In the same spirit, the parent does not say “it will

be okay” or try to take the emotion away from the child and deal with it for them. In essence we are asking the parent to meet the child where the child is at: the child is having an emotional upset, so we deal with the emotional situation first, and return to logic and language once the child has self regulated and is in a space where they can access the logical left brain again. Even when the child baits the parent, wanting to feed off the over-regulation of heated verbal discourse, the parent does not respond to the verbal, but stays in touch with co-regulating the over-arousal down to more even regulation. The parent’s use of their self in staying calm and soothing resonates with the child’s limbic memory of earlier times when the parent cuddled them as a baby in their arms. We wait for this same feeling to wash over the child, but this time they are affecting this soothing within themselves, not through the parent cuddling.

Initially some children would state that they are “ready” before they are actually ready. In a way this is another test of boundaries and cognitive control, rather than emotional control. The parent continues to validate their intention, and goes along with this assessment. Once the child is ready to move away from the safe space, we ask that the parent mention one or two aspects of the child’s body that have calmed down. They might say: “Yes, I see you have stopped kicking,” or “Yes, you are not breathing so hard anymore.” This practice supports the child’s bodily awareness of what they might key into the next time they feel out of control. Remember that not one of us really wants to feel out of control, and the child is no different, so they will be learning.

After leaving the safe space, the parent should take the child back to what caused the meltdown: this is important in order to avoid the child concluding that meltdowns are a way to get out of task expectations. Once the child realizes that their parent is taking them back to the task, they may escalate again; the parent simply states that they can see the child is not ready and turns around to take them back to the safe space. This could occur several times, and the parent should remain as neutral as possible. If the situation was homework, the parent may already have decided that they are going to decrease the task demand simply to get through the exercise. If the situation were that the brother clobbered the sister over the head with a shoe, they would be required to apologize and do something nice for the sister. Whatever the task, once it has concluded, there also needs to be a follow through that will reward the child for having regulated himself and having the ability to see the situation through.

It is not fair to the child or the parent to start this type of process while out in public! We advise families to introduce this protocol at home, over a weekend with nothing else planned, so that the time can be spent to work through it repeatedly. Once the child is keyed into how it works, the protocol can easily be adjusted to the public arena by using the name of the safe space they created at home and going to the car or public restroom if nothing else is available. And yes, we have plenty of stories of difficult public situations and bystanders watching the parent sitting on the floor with a crying child – but each one of the parents has said it felt so much better than being seen as an “out-of-control” mom, and knowing from experience that the process works.

Most families can curb the emotional meltdowns, to a large degree, in two weeks. Parents report that after the first couple of weeks they simply have to say the name of the safe space to start seeing the self-regulation kicking in, and the child perceives their growing sense of inner control to be the reward. And while children with attachment profiles have a harder time than most reaching the self-calming phase, they can get there – consistency remains the key. Even in these

cases, this protocol delivers quicker results than other methods parents may have tried, and they are willing to see it through.

Teachers can also adapt this method to their classrooms, though they may need the whole class to be involved in their collective “safe space” and have their own rules as to when someone is having such a moment. One example would be that the rest of the students should support the teacher by looking away and carrying on with their class work, allowing the teacher to help a particular student to overcome his “bad” moment. And of course this method is used in our clinic spaces all the time, and highly adaptable for all therapists.

With every technique, there will be exceptions to the rule. My advice would be to start introducing the protocol to parents with “milder” situations first, until you’ve gained the experience and confidence to try it with a more difficult client. Parents who invest in this protocol feel so empowered by having actual steps to follow, and they are thrilled to find that they do have the parenting skill needed to address their child’s challenges. It is a lovely way of increasing bonding and attachment, while decreasing power struggles at the same time.

I have heard, and you will hear, the question: are we not rewarding negative behavior with a positive outcome? I simply do not know what this means. If the executive pathway to emotional inhibition is only fully developed by the age of 22 in typical development, could we sincerely expect a 5 year old to have full command over their behavior? Are we claiming that a child wants to feel out of control when they are already anxious? Are we saying that children struggling with developmental delay, in all its varied differences, should nevertheless know how to self regulate when faced with a challenge? Do we hold a child with developmental delay to a different standard than ourselves, who also become out of control from time to time (and not one of us like ourselves afterwards)? If we really are honest with ourselves, is this whole notion that the child is purposefully out of control, purposefully “manipulative,” not perhaps more about us? We want the child to follow our instruction, and do what we say, because we feel justified in the fact that we “know better than them, and this is for their own good.” But do we really know the depth of the frustration and anxiety they are experiencing and how it makes them feel, driving them into the primal response of fight and flight rather than accessing the control from an under developed pre-frontal cortex?

So let us then talk about discipline. Dr. T. Berry Brazelton (Touchpoints 0-3; paraphrased) states “...that discipline means teaching, not to be confused with punishment. It is aimed at the goal of self-discipline and the goal is to teach the child to stop themselves. A child, who can recognize and can act on their own limits, is already a secure child. Children learn most about self-control from modeling on their parent’s behavior. A child needs limits and nurturance; neither one alone is sufficient for a child to grow.” In other words, to “discipline” is to teach a child more controlled behavior through modeling and understanding emotional development. Thus, after effectively using the meltdown protocol – after situations have calmed down and activities resumed – the parent is advised to take the child aside for a moment to briefly discuss what happened earlier that day. The parent can review rules and limit setting, and emphasize that a certain behavior is unacceptable, while at the same time reassuring the child: even though their behavior was not appreciated, they themselves are still loved. This supports the child to not

continue the “fantasy” that they are always in the wrong and therefore a “bad child,” and rather key into the reality: they are loved.

A Final Word

As an occupational therapist concerned with occupational function, we have a unique contribution to child development. We have the skills of task analysis, the ability to grade tasks, and the practical ideas of “how” to bring about functional performance. Though many other models acknowledge the sense of sensory processing and development, we are the ones who truly understand the application.

When development is impacted by trauma, our contribution to a team is essential to demystify the surface behaviors observed. Our influence can prevent a child from receiving a “negative reward” or “punishment” for a developmental delay that is not yet mastered; decreasing the confusion that this brings to the child and family. We also contribute tools that engage the child, embrace their individual differences, and calm them into readiness for the important work they need to do to get through the trauma.

It is my hope that this information adds to what you already know, strengthens your ability to assert your contribution in a team of professionals, and drives you to further learning. Above all, if you are having fun, this would be your model to the child and family. Find the fun together and continue the onward journey of development and growth!

Maude Le Roux, OTR/L

References

Articles

- Albers, E. M., Riksen-Walraven, J. M., Sweep, F. C., & Weerth, C. D. (2008). Maternal behavior predicts infant cortisol recovery from a mild everyday stressor. *Journal of Child Psychology and Psychiatry*, 49(1), 97-103.
- Allen, S. & Knott, F. (2016). How do children's challenges to function and participation impact maternal stress? *New Zealand Journal of Occupational Therapy*, 63(2), 29-37.
- Alluri, V., Toiviainen, P., Jaaskelainen, I., Glenean, E., Sams, M., & Brattico, E. (2012). Large-scale brain networks emerge from dynamic processing of musical timbre, key and rhythm. *NeuroImage*. 59.
- Autism Speaks. (2010) What lies beneath: Differences in brain connections.
- Bangel, K. A., Buschbach, S. V., Smit, D. J., Mazaheri, A., & Olf, M. (2017). Aberrant brain response after auditory deviance in PTSD compared to trauma controls: An EEG study. *Scientific Reports*, 7(1).
- Barfoot, J., Meredith, P., Ziviani, J., Wittingham, K. (2015) Relationship-focused parenting intervention to support developmental outcomes for a young child with cerebral palsy: A practice application. *British Journal of Occupational Therapy*. 1-4.
- Becker-Weidman, A. (2011). Dyadic developmental psychotherapy: Effective treatment for complex trauma and disorders of attachment. *Illinois Child Welfare*. 6(1).
- Becker-Weidman, A. (2009). Effects of early maltreatment on development: A descriptive study using the vineland adaptive behavior scales-II. *Child Welfare*. 88(2).
- Becker-Weidman, A. (2016). Heart Drawing: A New Diagnostic Tool. *Review of European Studies*, 8(2), 133.
- Benoit, D. (2004). Infant-parent attachment: Definition, types, antecedents, measurement and outcome. *Pediatric Child Health*. 9(8). 541-545.
- Benovoy, M., Dagher, A., Larcher, K., Salimpoor, V., Zatorre, R. (2011) Anatomically distinct dopamine release during anticipation and experience of peak emotion to music. *Nature Neuroscience*. 14(2).
- Bhreathnach, E. (2009) Trauma, sensory processing & attachment. Sensory-attachment intervention. *Family Futures Conference Paper*.

- Bratton, S., Ray, D., Rhine, T., Jones, L.(2005) The efficacy of play therapy with children: A meta-analytic review of treatment outcomes. *Professional Psychology: Research and Practice*. 36(4).
- Bridge, D., Voss, J. (2014) Hippocampal binding of novel information with dominant memory traces can support both memory stability and change. *The Journal of Neuroscience*. 34(6).
- Casenhiser, D., Binns, A., McGill, F., Morderer, O., Shanker, S. (2014) Measuring and supporting language function for children with autism: Evidence from a randomized control trial of a social-interaction-based therapy. *Journal of Autism Developmental Disorders*.
- Cervellin, G., Lippi, G. (2011). From music-beat to heart-beat: A journey in the complex interactions between music, brain and heart. *European Journal of Internal Medicine*.
- Chasnoff, I., Wells, A., King, L. (2015). Misdiagnosis and missed diagnoses in foster and adopted children with prenatal alcohol exposure. *Pediatrics*. 135(2).
- Champagne, Tina. (2011). Attachment, Trauma, and Occupational Therapy Practice. *American Occupational Therapy Association*. 16(5).
- Child Welfare Information Gateway. (2013). Long-term consequences of child abuse and neglect. Washington, DC: U.S. Department of Health and Human Services, Children's Bureau.
- Children and Family Research Center. (2004). Multiple placements in foster care: Literature review of correlates and predictors. *University of Illinois*.
- Committee on Early Childhood, Adoption and Dependent Care. (2000) Developmental issues for young children in foster care. *American Academy of Pediatrics*. 106(5). 1145-1150.
- Dartmouth College. "Brain sets a unique learning rate for everything we do, by self adjusting to the environment: Study refutes theory that behavior under uncertainty is optimal." *ScienceDaily*. ScienceDaily, 19 April 2017.
- Espe-Sherwindt, M., Gothard, D., Buletko, B., Stoner, G., McCauley, A. (2015). Evaluation of the ohio PLAY project. *Family Child Learning Center: Akron Children's Hospital*.
- Esposito, G., Yoshida, S., Ohnishi, R., Tsuneoka, Y., Rostango, M., Yokota, S., Okabe, S., Kamiya, K., Hoshino, M., Shimitzu, M., Venuti, P., Kikusui, T., Kato, T., Kuroda, K. (2013). Infant calming responses during maternal carrying in humans and mice. *Current Biology*. 29:739-745.
- Feldman, R., Singer, M., Zagoory, O. (2010) Touch attenuates infants' physiological reactivity to stress. *Developmental Science*. 13(2). 271-278.

- Fosco, W., Hawk, L., Rosch, K., Bubnik, M. (2015). Evaluating cognitive and motivational accounts of greater reinforcement effects among children with attention-deficit/hyperactivity disorder. *Behavioral and Brain Functions*. 11(20).
- Greenspan, S. I., & Porges, S. W. (1984). Psychopathology in Infancy and Early Childhood: Clinical Perspectives on the Organization of Sensory and Affective-Thematic Experience. *Child Development*, 55(1), 49.
- James, K., Miller, L., Schaaf, R., Nielsen. (2011). Phenotypes within sensory modulation dysfunction. *Comprehensive Psychiatry*. 52:715-724.
- Jung, R. (2007). The parieto-frontal integration theory (P-FIT) of intelligence: Converging neuroimaging evidence. *Behavioral and Brain Sciences*. 30. 135-187.
- Kemper, K., Shaw, T. (2007). The research failed, but the patients are doing well. *Pediatrics*. 119(1).
- Khalifa, S., Bella, S., Roy, M., Peretz, I., Lupien, S. (2003) Effects of relaxing music on salivary cortisol level after psychological stress. *New York Academy of Sciences*.
- Kolk, B. A., MD. (2005). Developmental Trauma Disorder: Toward a rational diagnosis for children with complex trauma histories. *Psychiatric Annals*, 35(5), 401-408.
- Iacoboni M, Molnar-Szakacs I, Gallese V, Buccino G, Mazziotta JC, et al. (2005) Grasping the Intentions of Others with One's Own Mirror Neuron System. *PLoS Biol* 3(3): e79
- Kennedy, J. & Lane, S. (2014). The role of tactile sensation in the neurodevelopment of affective and social function. *The American Occupational Therapy Association, Inc.* 37(1).
- Kimble, M., Fleming, K., Bandy, C., Zambetti, A. (2010). Attention to novel and target stimuli in trauma survivors. *Psychiatry Research*. 178.
- Koomar, J., Burpee, J., DeJean, V., Frick, S., Kavar, M., Fischer, D. (2000). Theoretical and clinical perspectives on the interactive mentronome: A view from occupational therapy practice. *The American Journal of Occupational Therapy*.
- Landers, M., Sullivan, R. (2012) The development of neurobiology of infant attachment and fear. *Developmental Neuroscience*. DOI: 10.1159/000336732
- Leuchs, J., Groessi, A., Chasnoff, I. Childhood Trauma: Its effects on mental health and behavior.
- Link, J. (2015). Infant mental health: Taking baby steps toward the future. *Maternalmentalhealthnow*. (n.d.). Retrieved February 06, 2018, from <http://maternalmentalhealthnow.talentlms.com/>

- Menning, H., Renz, A., Seifert, J., Maercker, A. (2008). Reduced mismatch negativity in post-traumatic stress disorder: A compensatory mechanism for chronic hyperarousal? *International Journal of Psychophysiology*. 68:27-34.
- Meredith, P. (2009). Introducing attachment theory to occupational therapy. *Australian Occupational Therapy Journal*. 56: 285-292.
- Milliken, B., Goodman, G., Bazyk, S., Flinn, S. (2008). Establishing a case for occupational therapy in meeting the needs of children with grief issues in school-based settings. *Occupational Therapy in Mental Health*.
- Miller, C. (n.d.). How Trauma Affects Kids in School | Child Mind Institute. Retrieved February 6, 2018, from <https://childmind.org/article/how-trauma-affects-kids-school/>
- Moran, H. (2015). Differences between Autistic Spectrum Disorder (ASD) and attachment problems based upon clinical experience and observations.
- Mubarak, A., Cyr, C., St-André, M., Paquette, D., Emond-Nakamura, M., Boisjoly, L., . . . Stikarovska, I. (2016). Child attachment and sensory regulation in psychiatric clinic-referred preschoolers. *Clinical Child Psychology and Psychiatry*, 22(4), 572-587.
- Nagai, M., Kishi, K., Kato, S. (2007). Insular cortex and neuropsychiatric disorders: A review of recent literature. *European Psychiatry*. 387-394.
- Pearson, J., Clifford, C., Tong, F. (2006) The functional impact of mental imagery on conscious perception. *Current Biology*. 18(13).
- Pfeiffer, B. (2012). Sensory hypersensitivity and anxiety: The chicken or the egg?. *The American Occupational Therapy Association, Inc.* 35(2).
- Porges, S. (2011). The polyvagal theory: Neurophysiological foundations of emotions, attachment, communication, and self-regulation. *Journal of Unified Psychotherapy and Clinical Science*. 2(1).
- Pratt, C., Chasnoff, I. Social/emotional factors in failure to thrive.
- Price, J., Charmberlain, P., Landsverk, J., Reid, J., Leve, L., Laurent, H. (2008). Effects of a foster parent training intervention on placement changes of children in foster care. *Child Maltreatment*. 13(1):64-75.
- Ray, D., Schhottelkorb, A., Tsai, M. (2007). Play therapy with children exhibiting symptoms of attention deficit hyperactivity disorder. *International Journal of Play Therapy*. 16(2): 95-111.
- Sajaniemi, N., Makala, J., Salokorpi, T., von Wendt, L., Hamalainen, T., Hakamies-Blomqvist, L. (2001). Cognitive performance and attachment patterns at four years of age in ex-

- tremely low birth weight infants after early intervention. *European Child and Adolescent Psychiatry*.10:122-129.
- Sarver, D., Rapport, M., Kofler, M., Raiker, J., Friedman, L. (2015). Hyperactivity in Attention-deficit/hyperactivity disorder (ADHD): Impairing deficit or compensatory behavior?. *Journal of Abnormal Child Psychology*.
- Schaaf, R., Miller, L., Seawell, D., O'Keefe, S. (2002). Children with disturbances in sensory processing: A pilot study examining the role of the parasympathetic nervous system. *American Occupational Therapy Association National Conference*.
- Schore, A. (2001) Dysregulation of the right brain: a fundamental mechanism of traumatic attachment and the psychopathogenesis of posttraumatic stress disorder. *Australian and New Zealand Journal of Psychiatry*. 36:9-30.
- Sheridan, M., Fox, N., Zeanah, C., McLaughlin, K., Nelson, C. (2012). Variation in neural development as a result of exposure to institutionalization early in childhood. *PNAS Early Edition*.
- Solomon, R., Egeren, L., Mahoney, G., Huber, M., Zimmerman, P. (2014). PLAY project home consultation intervention program for young children with autism spectrum disorders: A randomized controlled trial. *Journal of Developmental and Behavioral Pediatrics*. 35(8).
- Van Hulle, C., Schmidt, N., Goldsmith, H. (2011). Is sensory over-responsivity distinguishable from childhood behavior problems? A phenotypic and genetic analysis. *The Journal of Child Psychology and Psychiatry*.
- Webb, A. R., Heller, H. T., Benson, C. B., & Lahav, A. (2015). Mother's voice and heartbeat sounds elicit auditory plasticity in the human brain before full gestation. *Proceedings of the National Academy of Sciences*, 112(10), 3152-3157.
- Wong, C., Odom, S., Hume, K., Cox, A., Fetig, A., Kucharczyk, S., Brock, M., Plavnick, J., Fleury, V., Schultz, T. (2014). Evidence-based practices for children, youth, and young adults with autism spectrum disorder. *Frank Porter Graham Child Development Institute*.

Books

- Badenoch, B. (2008). *Being a brain-wise therapist: A practical guide to interpersonal neurobiology*. New York: W.W. Norton & Co.
- Crittenden, P. M. (2016). *Raising parents: attachment, representation, and treatment*. London: Routledge, Taylor & Francis Group.

- Fleury, T., & Barthel, K. (2014). *Conversations with a rattlesnake: raw and honest reflections on healing and trauma*. North Vancouver, British Columbia: Influence Publishing.
- Fraiberg, S. H. (1959). *The magic Years*. New York: Scribner.
- Gil, E. (1991). *The healing power of play: working with abused children*. New York: Guilford Press.
- Kolk, B. V. (2015). *The body keeps the score: brain, mind, and body in the healing of trauma*. NY, NY: Penguin Books.
- Levy, T. M., & Orlans, M. (2014). *Attachment, trauma, and healing: understanding and treating attachment disorder in children, families and adults*. London: Jessica Kingsley .
- Parham, L. D., & Fazio, L. S. (2008). *Play in occupational therapy for children*. St. Louis, MO: Mosby Elsevier.
- Perry, B. (2013). *Brief: Reflections on Childhood, Trauma and Society*. The ChildTrauma Academy Press.
- Perry, B. D., & Szalavitz, M. (2008). *The boy who was raised as a dog: and other stories from a child psychiatrist's notebook : what traumatized children can teach us about life, loss, love, and healing*. New York: Basic Books.
- Siegel, D. J. (2007). *The mindful brain: Reflection and attunement in the cultivation of well-being*. New York: W.W. Norton.
- Siegel, D. J. (2014). *Brainstorm: The Power and Purpose of the Teenage Brain*. Tarcher.
- Siegel, D. J., & Bryson, T. P. (2011). *The whole-brain child: 12 revolutionary strategies to nurture your child's developing mind*. Delacorte Press. - See more at: <http://www.buffalolib.org/vufind/Record/1836050/Cite#sthash.Pj8KxJol.dpuf>
- Siegel, D. J., & Bryson, T. P. (2014). *No-drama discipline: The whole-brain way to calm the chaos and nurture your child's developing mind* (First edition.). Bantam.
- Szalavitz, M., & Perry, B. D. (2010). *Born for love: Why empathy is essential-- and endangered*. New York: William Morrow.

Emotional Processing and Trauma-Informed Care in Pediatric Occupational Therapy

3 CE HOURS / .3 CEUs

FINAL EXAM

1. In the late 1800's, _____ was developing her thought process in Italy, which permeated through the US as well. She believed in child-centered environments, providing real tools that work, keeping materials and equipment accessible, creating beauty and order, competence and responsibility, scheduling large blocks of open-ended time, and that the adult should spend more time observing than teaching.

- a. Golda Meir
- b. Margaret Mahler
- c. Maria Montessori
- d. Serena Wieder

2. During the first half of the 1900's, _____ objected to the analysis of children's abilities based solely on intelligence tests. He stated that research should be both qualitative and quantitative – careful observation of children was as valid as scores on a test. He provided us with the term "Zone of Proximal Development" (or ZPD): the distance between the most difficult task a child can do independently and the most difficult task a child can do with help.

- a. Colwyn Trewarthon
- b. Jean Piaget
- c. John Dewey
- d. Lev Vygotsky

3. In his book *The Interpersonal World of the Infant*, _____ wrote about the development of a "sense of self," which he breaks down into the Emergent Self, Core Self, Subjective Self and finally the Verbal Self. He also describes the overlap between psychoanalysis and developmental psychology.

- a. Bessel Van Der Kolk
- b. Bruce Perry
- c. Daniel Siegel
- d. Daniel Stern

4. Considering Dr. Stanley Greenspan's emotional development model, "the work of self-regulation in the body" describes the _____ functional emotional developmental capacity.

- a. First
- b. Fourth
- c. Sixth
- d. Third

5. Considering Dr. Stanley Greenspan's emotional development model, "the important world of symbolic thinking" describes the _____ functional emotional developmental capacity.

- a. First
- b. Fifth
- c. Second

d. Sixth

6. In looking at attachment behavior, the child with _____ does not trust that their mother will be there when they seek reunification and learns to not expect it. These children cope with their “loss” by avoiding the relationship to avoid the hurt. Going forward, this profile becomes task-oriented, often at the expense of other relationships: their mantra becomes “My only chance to find peace and happiness is to produce and feel successful in what I do.”

- a. A disorganized pattern of attachment
- b. A secure attachment profile
- c. An ambivalent attachment profile
- d. An avoidant attachment profile

7. In looking at attachment behavior, while the origin of _____ may difficult to discern, it is usually found in cases of single or complex trauma. These children do not have a specific pattern when challenged. Instead, the range of emotional adaptive responses vary – depression, sadness, or extreme rages such as RAD (Reactive Attachment Disorder) – though the common factor is that the child is unable to organize himself around the response, loses control, and is burdened by this loss of power and autonomy. The very fear of feeling out of control fuels the downward spiral of this profile.

- a. A disorganized pattern of attachment
- b. A secure attachment profile
- c. An ambivalent attachment profile
- d. An avoidant attachment profile

8. _____ (early 1990’s) developed a model of playfulness, which considers three elements: intrinsic motivation, internal control, and the freedom to suspend reality.

- a. Anita Bundy
- b. Gordon M. Burghardt
- c. Mary Reilly
- d. Nancy Takata

9. Mary Reilly mentions three stages of play development as a hierarchy. _____ is when the first two stages are added to the experience of expectations, adding the concepts of success/failure and winning/losing.

- a. Abstraction behavior
- b. Achievement behavior
- c. Competency behavior
- d. Exploratory behavior

10. _____ (2005), a biologist and psychologist, specified five criteria for identifying play: a sense of the immediate, spontaneous and intentional, can be out of context or fragmented, repeated form of action but not stereotypical, and a sense of relaxation.

- a. Anita Bundy
- b. Erik Erikson
- c. Gordon M. Burghardt
- d. Joseph LeDoux

11. "When observing his play closely, you will see aspects of his everyday life experiences being added to his 'make believe.' This kind of play is extremely important: he is trying to figure out the meaning and the 'fit' of these experiences into his life, all the while forming his own frame of reference to integrate information and to build behavior upon." This is characteristic of a typical child, age _____.

- a. 1
- b. 2
- c. 3
- d. 4

12. In looking at the sensorimotor developmental hierarchy, and the impact each level has on the motivation and ability to play, the term " _____ " describes "understanding the concepts of left and right, which has a strong impact on both sound reversals in language, and letter and number reversals in writing: for example, playing 'Simon Says'."

- a. Bilateral integration
- b. Directionality
- c. Laterality
- d. Postural control

13. Considering social developmental milestones in typical children, and the play associated with each, _____ the child prefers to play with other children rather than playing alone, unless engrossed in a new and novel activity they are figuring out for a first time.

- a. After 48 months
- b. Between 15-18
- c. By 36 months
- d. From 24 months

14. The separation-individuation process can influence which emotional themes appear in symbolic play. _____, typically-developing children are moving away from their parent as home base into a widening world, but are frequently observed checking back in with the parent and bringing their toys to share with the parent.

- a. At 12-15 months
- b. Between 10-12 months
- c. Between 18-24 months
- d. By 15-18 months

15. As children work through the last phases of the separation-individuation process, between ages 2-4 years, there are common emotional themes that come up in their play. The theme of _____ can be seen as children increasingly tune in to the outside world: they start playing games that involve looking for things, searching for hidden treasures, exploring new spaces. They might return to this explorative phase as they synthesize additional details about objects and their purposes, adding understanding that they missed during previous explorations.

- a. Control
- b. Curiosity
- c. Nurture and Dependency

d. Power and Assertiveness

16. _____ is a parent questionnaire that examines the influence of the auditory and language systems. This is helpful in referring to speech-language pathologists, as the child's success in listening and using receptive and expressive language skills may be another influential factor causing meltdown behavior.

- a. The Listening Inventory (TLI)
- b. The Peabody Developmental Scales
- c. The Wold Sentence Copying Test
- d. Winnie Dunn's Sensory Profile

17. The _____ is an accepted tool for OTs to use to extrapolate the impact of both sensorimotor and emotional development on executive behavior.

- a. Beck Youth Inventory
- b. Behavior Rating Inventory of Executive Functioning (BRIEF)
- c. DeGangi-Berk Test of Sensory Integration
- d. Pediatric Symptom Checklist

18. "Working through aspects of skill and maturing the socio-emotional system" are processes characteristic of _____ of intervention.

- a. Phase One
- b. Phase Two
- c. Phase Three
- d. None of the above

19. During intervention, some children may gravitate quite readily to playing with the characters from their favorite story, but, due to sequence difficulties, prefer to follow the exact story sequence from long-term memory. *In cases of trauma*, therapists should _____.

- a. Become quiet, remain present, and act as a witness of the child's process
- b. Discontinue the use of these characters, as it is interfering with development
- c. Use gentle, playful obstruction to disrupt the story sequence so that the child has to negotiate around the disruption
- d. None of the above

20. Per "Maude's Meltdown Recipe," once in the safe space, the parent should _____.

- a. Encourage the child to leave it as swiftly as possible
- b. Keep the language at a minimum: language drives the logical brain, which is not always available in times of emotional stress
- c. Maintain eye contact with the child, to enforce emotional regulation
- d. Repeat "it will be okay" – this will take the emotion away from the child, allowing the parent to deal with it for them