THE DEVELOPMENTAL, INDIVIDUAL-DIFFERENCE, RELATIONSHIP-BASED (DIR$_{TM}$) MODEL

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We now have the opportunity to redefine the standards of care in children with severe developmental challenges. This includes children with autistic spectrum disorders, problems with relating and communicating, including severe language problems, severe regulatory problems, children with Down's Syndrome, Fragile X Syndrome, Fetal Alcohol Syndrome, Cerebral Palsy, and even severe forms of Attention Deficit Disorder. We are now in a position to truly redefine how we work with these children.

Earlier Models of Intervention

In the past, two models guided interventions. The behavioral model, did the best that it could under the circumstances and worked with surface behaviors. Much of behavioral work was geared only to modify how children behave, as it offered the only alternative to ignoring children, or simply trying to contain their aggressive or withdrawing behavior. In its time, and for a long time, the behavioral approach was the only intervention approach available. While the early report on this approach from non-clinical trial research study (Lovaas, 1987) was encouraging, a more recent study, the only clinical trial study of this method (i.e., with random assignment to the intervention group), showed very modest educational gains (13% had good educational progress) and little to no social and emotional differences with a control group (Smith, Groen, & Wynn, 2000). The fact that this approach pioneered the intensity of working with the child with special needs was a very promising development. Now, however, we can go beyond working on modifying behaviors and work on the underlying problems that are giving the children trouble.

The second approach was to work on circumscribed cognitive skills, taking lessons from older children. For example, if an older child is supposed to learn how to identify shapes, then take a three year old who has no language and work on matching shapes in a rote and repetitive way. But this approach was piecemeal and worked with isolated cognitive skills.

With our current understanding of how the mind and brain function, we can do much better. We can go beyond these two older approaches of modifying surface behaviors and/or working with isolated cognitive skills. We can now systematize a developmental approach that synthesizes and integrates all the best information we have about how the mind and brain grow.

New Insights

There are three insights of the last twenty years that are the cornerstones of our new way of working with infants and children with developmental problems.

First Insight: *Language, cognition, (including math and quantity concepts), as well as emotional and social skills are all learned through interactive relationships which involve affective exchanges.*

It was once thought that if you want to master a particular cognitive skill, you stimulate that cognitive skill. We now know that the mind and brain grow most rapidly in the early years as an outgrowth of interactions with caregivers. These interactions are crucial to development and must have a number of critical features including:

- Warmth and security
- Regulation so the child is not overwhelmed
- Relatedness and engagement
- Back and forth emotional signaling and gesturing
- Problem solving
- The use of ideas in a meaningful and functional way
- Thinking and reasoning

Most essential are multiple interactions with children that exchange emotions and provide a fundamental sense of relatedness. When we deprive children of this relatedness, as seen in children in orphanages and other settings, they don't grow. Without fundamental relating, language and cognition do not develop well. We have seen in our observations and our studies that even the simplest task of learning how to say hello is dependent upon our emotions and our relationships.

Thus, emotions lead the way throughout the developmental process. They become especially important in abstract thinking, such as teaching the child the concept of justice or the concept of fairness. We have found that the child has to have two levels of understanding to do that. One is the level of lived emotional experience. The children have to experience the phenomena of being treated fairly and unfairly. Giving a child six apples and taking them away and giving them to his sibling teaches quickly what unfairness is. They then can label and abstract using that experience and create a category of things that are fair and things that are unfair. But they first had to live the emotional experience in order to know what the concept is all about. Similarly, every word in our language has to be lived first to understand it. You don't have to define an apple by its redness and roundness; you can define it by how it tastes and what it feels like to throw it. Language, cognition, math, and quantity concepts are all conveyed through interactive relationships through affect.

We cannot teach children in the old fashioned ways anymore, particularly children with special needs who have processing problems. This means working on the relationship with the child and the whole family pattern because it is within the family context, as well as the cultural and community, that these relationships, and emotional interactions occur. Intervention must mean a much broader relationship-based, family-based, cultural and community approach to children with special needs.

Second Insight: *Variations exist in underlying motor and sensory processing, i.e., regulatory capacities.*

In the last ten to twenty years we have identified the important underlying processing capacities that are behind children's worrisome behavior. We understand how children are individually different, i.e., in the way they process sounds (auditory processing and language), the way they process what they see (visual/spatial processes), and the way they plan and sequence actions (motor planning and sequencing). Visual/spatial processing is involved when the child can search and find the hidden object; when a child understands that mommy is in the next room and I'm

here and does not panic. When the child understands even more, e.g., when he is in school, mommy is not too far away and is only a few minutes away, he utilizes a related time concept. A spatial concept is utilized when the child thinks it will only take 30 steps out this door and out that door to get where mommy usually is. The child is utilizing auditory processing, language, visual/spatial processing, motor planning and sequencing to figure these things out.

We find enormous variations in how well children can plan (and execute) actions. Some children can only bang (repetitive one step), or can only put a car in a garage and take it out (two steps). Other children can take the car out of the garage, take it to grandmother's house, make a tea party at grandmother's house, then bring the car back with some extra tea for mommy who is sitting back at the original house (a complex idea involving six + steps). One child does a one-step/two step and the other child does a six/seven step action planned pattern. This is motor planning and sequencing is enormously important for children. We find that many of the children with autistic spectrum disorders have severe problems with their motor planning and sequencing that underlies a much of their repetitive behavior. If you cannot plan in sequence, you are going to repeat. Motor planning is very important in understanding these symptoms.

We have also observed that many of the children have differences in the way they modulate sensation. Some are very over reactive to things like sound and touch, so they hold their ears or they avoid and push away from people who try to tickle them. Other children crave sensory input and they want more touch or they want more noise. And some children have both the craving, they want more (sensory input) but they get overloaded because they also have areas of sensitivity. For these children it is very hard to find the right sensory pattern to pull them in and engage them. We find that a lot of children who are self-absorbed are under-reactive to things like touch and sound. Other children who are very avoidant and keep running away from people, because they are over-reactive (hypersensitive) to things like touch and sound. We need to look at the sensory modulation of the child to find the right pattern to pull that child into a relationship. If you work with the underlying processing differences, then you can influence many behaviors and help the child be adaptive, across a broad range of issues rather than just work on isolated cognitive skills or isolated cognitive behaviors.

Third Insight: *A New Roadmap of Functional Emotional Developmental Capacities.*

The third area of insight, based on our new research, is to understand what the early stages of development are. Historically, we thought of development in very isolated ways. For motor development we had a timetable for sitting up, for walking, etc. In language development we knew when the first sounds are made, when the first words are made, etc. In different areas of cognitive development, we knew when a child searches in your hand for an object, when a child can stack blocks in a certain way, and so forth and so on. In social and emotional development we knew when a child will greet, when a child will play with peers, when a child will do some pretending, etc.

We have had separate lines for each area in development, as though these areas are somewhat independent of one another. But in fact, for the child, all these lines of development are interrelated. The child doesn't separate out their language and their motor skills. He does not say, "Well, I'm a four-year-old motor wise, only a two-year-old language wise, and only an eight-month-old socially and emotionally". The child integrates all these in one smooth way. It's kind of like a basketball team. You've got to look at how the team plays together as an integrated unit. That determines whether the team wins or loses more than any individual player. Similarly, we haven't had a developmental road map for the mental team: language, cognition, affect and emotions.

In the last 10-20 years we've put together a functional developmental roadmap where we now understand the core levels that synthesize and integrate all the different developmental capacities. We have identified six core levels (and then additional ones beyond that) that help us organize where we want to work with the child.

The six levels are:

1. Regulation and shared attention, which you need as a foundation for the next level.
2. Engagement with warmth and trust and intimacy.
3. Two way purposeful communication-opening closing circles of communication in a back and forth way with a lot of affective gesturing and micro-affective gesturing, smiles, smirks, head nods; the ability to take these gestures and organize them into problem solving patterns so we can actually take mommy by the hand, walk her to the refrigerator, bang on the door and point to the juice. That may be 10 or 20 interactive gestures all targeted towards solving a problem.
4. Interactive problem solving/use of gestures in a continuous flow.
5. Functional use of ideas. In language, for example, it would be, "Me hungry, juice please", or in pretend play, feeding the dollies, hugging the dollies.
6. The sixth level is the ability to build bridges between ideas so you can use language logically and realistically and shift gears between reality and fantasy. For example, when the child says "I want to go out" and you say "why?" "Because I want to play", or "the dolly is having a tea party". "Well how come the dolly wants to have a tea party?" "Because the dolly is hungry" or "the dolly is having a birthday and they like to have tea parties on their birthday". There is logical use of ideas supporting imaginative play and negotiating and problem solving with the world having debates, having problem solving discussions at the symbolic level.

For each of the six levels we can look at the particular motor skills, language skills, and visual/spatial processing skills that relate to that level that are needed to support that level. This gives us a much more integrated picture of development. When we now see a child we can figure out where they are in their functional level.

<u>The Developmental, Individual-Difference, Relationship-Based (DIR_{tm}) Model</u>

The Developmental, Individual-Difference, Relationship-Based (DIR_{tm}) model summarizes an approach that builds on these growing insights regarding functional developmental capacities, biologically-based processing differences, and emotionally meaningful learning interactions between families, caregivers, and children. The "**D**" stands for functional **Developmental** levels; we want to see where the child is in her development. "**I**" stands for **Individual differences** in processing; the processing profile in terms of auditory processing, visual/spatial, sensory modulation, motor planning. And "**R**", stands for what the **Relationships** are like. What are the interactive relationships and use of affects like in the family now and what would be the ideal pattern to support enhanced development. What is the pattern we want in the therapeutic program at home and at school to support enhanced development?

The DIR model looks comprehensively at the child and is an advance over the older ways of thinking, because we are not just focused on isolated cognitive skills and on surface behaviors. We are focused on an integrated understanding of human development. The integrated model of development includes interaction with caregivers

and the environment, biologically mediated motor and sensory processing differences, and the child's functional developmental road map, i.e., determining where the child is in terms of the six functional developmental elements. This changes the way we do assessments and the way we plan interventions.

The DIR model, therefore, serves as a framework to understand the developmental profile of an infant or child and his or her family. It enables caregivers, educators, and clinicians to plan an assessment and intervention program that is tailored to the child's and family's profile. It is not an intervention, but a method of analysis and understanding that helps to organize the many intervention components into a comprehensive program.

Sometimes, the DIR model or method of analysis is confused with "Floortime." Floortime is one component of a comprehensive DIR based intervention program. It focuses on creating emotionally meaningful learning interactions that facilitate the six functional developmental capacities outlined earlier (i.e., attention, engagement, purposeful emotional signaling and gesturing, preverbal and verbal problem-solving and imaginative interactions, thinking, etc.). Other components that a DIR based comprehensive program may include are semi-structured problem-solving, learning interactions, speech therapy, occupational therapy, peer play opportunities, educational programs, etc.

The DIR model is the most comprehensive conceptual framework available to understand and organize programs of assessment and intervention for children with special needs. It has helped many children with special needs, including autistic spectrum disorders, learn to relate to adults and peers with warmth and intimacy, communicate meaningfully with emotional gestures and words, and think with a high level of abstract reasoning and empathy (Greenspan & Wieder, 1997).[◊]

[◊] See also see "Research Support for a Comprehensive Developmental Approach to Autistic Spectrum Disorders and Other Developmental and Learning Disorders: The Developmental, Individual Difference, Relationship-Based (DIR_{tm}) Model" at http://www.icdl.com.

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