

## **Web-Based Radio Show**

# **Goals and Appropriate Measurements for Progress of Healthy Development**


**Stanley I. Greenspan, M.D.**

August 1, 2008

Good morning. Welcome to our Web-Based Radio Show. Today's topic is going to be one that we get a lot of questions about, so I thought it important to address it as quickly as possible, which is how one measures progress with children, particularly in school settings, but it is also important for parents at home and really for everybody who works with a child – all the different therapists and the whole team. It comes up probably most frequently, though, when schools have to track progress to justify a particular program. Now there are a few different choices that schools can make, but also again I just want to emphasize and then we'll stick to schools as the main example with the realization that it applies everywhere, that often parents are receiving support from their communities or states and they have to show progress also or that the program they are using is being effective.

Here is the basic issue. The real question is what we are going to measure as a sign of progress. There is an old saying that often what is meaningful is not measurable and what is measurable is not meaningful. It is kind of cute and funny and it has a certain element of truth to it, that sometimes the more interesting and more complex phenomena are harder to measure. But nonetheless, the issue of measurement and being able to demonstrate how a child is progressing is very, very important.

When it comes to children with autistic spectrum disorders and other special needs conditions, the question comes up in a very salient way. A choice often boils down to a few different options. These represent different philosophies and different views of not just autistic spectrum disorders and other special needs conditions, but almost different views of life. They come from different models of human development and human functioning. On the one hand, there is the behavioral school which has a long history dating back to John Watson at the turn of the century and certainly B. F. Skinner and Operant Conditioning Theory and his work and then the applied work of Skinner's concepts by Ivar Lovas to children with autistic spectrum disorders, and more popularly known as ABA or Applied Behavioral Analysis and Discrete Trial work, this approach comes from a long tradition of philosophy that looks at discrete behaviors. It doesn't come from a theory of human development as such where there are milestones for different functions like forming relationships or learning to have empathy or learning to think. So the work of developmental theorists like Jean Piaget, for example, on thinking or John Bowlby and Mary Ainsworth on attachment doesn't figure in prominently to the behavioral schools because they start off with the notion that specific discrete behaviors are what is important. The model of development that is used is a model which looks at behaviors that you want to promote – what are the desirable behaviors?




Earlier in my career when I was learning about behavioral approaches and one of my early monographs was about integrating, actually, operant conditioning and psychoanalytic models in the psychological issue series for those who are interested, but nonetheless when I was asking one of my professors who was an expert on behavioral approaches how the behaviors decide what is the desirable behavior to promote, he said, “The Green Thumb” like the good gardener. Then I learned in a practical way, often my behavioral colleagues would look at what typical children were doing at a certain age and those would become the desirable behaviors that would be promoted in children with challenges – with special needs or with autistic spectrum disorders. So for example, with a 3 year old child who is not looking at adults, looking might be reinforced; rewarded, so to speak. Where the child can’t sit at a desk to perform certain learning activities, compliance and sitting might be reinforced. If one sees that 2 ½ or 3 year olds can begin sorting different shapes, the ability to sort shapes might be reinforced. If a child is not yet imitating, imitation might be reinforced.

The paradigm for operant conditioning and behavioral approaches is to have a discriminative stimulus – that is the stimulus that sets the occasion for the reward or the reinforcement, the behavior, and then the reinforcement or the reward. So seeing the blocks might be the discriminate stimulus; the behavior that you are looking for – the child to stack the blocks, they might copy the adult doing it first, and then the reward might be a social reward like a “Good job!” or a smile or a touch of the hand, or it might be an M&M – a food reward, or some activity the child finds highly desirable.

Now when it comes to the issue of measurement, the approach that is geared from behavioral philosophy and from the operant conditioning tradition, would focus on discrete, observable behaviors and might simply count the increased frequency of looking behavior or sitting behavior or stacking blocks or sorting shapes and putting them in their proper place like a puzzle where you put round or square or rectangular shapes into their proper place. It is very direct and it is easy to measure if a child can do this correctly five times out of six when they start out doing it only one time out of six. So you might show the increasing frequency of looking behavior or block copying behavior or sorting behavior. You might look at the increased frequency of using words or copying words or imitating words. Basically, whatever the desirable behavior was, one could look at increasing frequencies of these and one would have something that is very clear and precise and easy to measure. This is very attractive for many educational settings because it gives a record to show progress; if not on a day-to-day basis, a week-to-week basis. Or, a lack of progress if that is the case.

But this raises the question: Are the behaviors that are being counted and looked at as the indicators of progress or a lack of progress, are they the most meaningful behaviors or the most meaningful categories of behavior that constitute healthy educational functioning or healthy human social and emotional functioning? In other words, are those the best indicators of intellectual, emotional, and social functioning? We raised the question, how do we know if the behaviors we are measuring are the most relevant for educational outcomes, or social or emotional gains. A child simply repeating words is not the same as a child understanding what those words mean and being able to use them in a wide range of social contexts. The child looking is not the same as the child enjoying intimacy or having empathy for other people’s feelings.

So what are the most relevant behaviors or areas of functioning? Here we bring in a whole entirely different philosophy; one grounded in looking at what might be for the lack of a better term, called the foundations for healthy development and how these progress through different stages. Healthy development and its stages have been mapped by different theorists, and there is lots of now empirical



support for these different stages or different groups of behaviors in the literature. So for example, emotional and social functioning is characterized by the ability to focus and enjoy other people, to really engage with them, to show a wide range of emotions and interaction with others, to get into what we call back-and-forth communication, to engage in shared social problem solving where for example the toddler is taking mom by the hand and showing her what he wants, sometimes referred to as “joint attention” where the child is playing with a toy and mom at the same time and going back-and-forth between the toy and mom, you can have multiple frames of joint attention as an important foundation for healthy development.


So whether it’s engagement – sometimes called attachment – or whether it is shared social problem solving and back-and-forth communication – sometimes called joint attention – or whether it is even higher levels; the ability for using ideas as evidenced in imaginative play where the dollies are cooking together or feeding one another or where mommy is holding a dolly and talking for the one dolly and the child is holding the other dolly and talking for the other dolly. Or, whether it is logical thinking where the child is answering why they want to go outside. “I want to go outside because it will be fun and it will make me happy and there are things that I want to play with out there” where the child is truly understanding their own feelings and their reasons for things. Or, higher levels of thinking; what we call multi-causal thinking and gray area and comparative thinking, and even reflective thinking where the child can reflect on themselves; take a step away and say, “Gee, I don’t know why I’m so angry” or “Gee, I think I like Mark Twain better than Tolstoy because my background is more similar to his.”

So, different theorists have come together to map these stages. Again, I mentioned there is lots of support. So in a purely intellectual or cognitive realm, Piaget is certainly well known, in the emotional and social realm, early pioneers like Erik Erikson and others such as Anna Freud – Freud’s daughter as well as Freud himself, although not every element of these theories is widely accepted, many elements are, or the work of Bowlby and Spitz – early pioneers on observing children and the importance of early relationships and interactions. Certainly Bowlby’s work on attachment has led us to a whole or really multi generations now have researchers who have documented the importance of early attachments and the stages that they go through.

So there is wide ranging support for the stages of intellectual and emotional and social growth. We summarize some of this support in our book, *The First Idea: How Symbols, Language, and Intelligence Evolved from Our Primate Ancestors to Modern Humans* as well as an earlier book, *The Growth of the Mind* as well.

The question has always been, when we look at the broader, intellectual and social and emotional foundations for development, I would say in summary terms to relate, communicate, and think, the challenge has been how can we measure these? Can we measure a child’s progress in school in terms of his ability to relate, communicate, and think; in terms of his ability to pay attention, to engage with others, to interact, to problem solve in a socially meaningful way, to use ideas creatively and then logically, and then advance to higher levels of logical thinking as he or she applies that to different academic subjects – be it reading comprehension or math or science or history. So the real challenge is how to measure what we will call the healthy foundations of development.

Before we even talk about that, though, we have to come to a consensus. What is our goal for the child? So every parent and every educator and every administrator needs to be clear in their own minds or have a debate with other administrators, educators, and parents about what is important – these foundations of healthy development or specific behaviors like compliance? Now sometimes with a child who is being unruly or disrespectful or impulsive, all you are concerned about is stopping that behavior. In terms of long



term goals, what do we want for our children? More looking? More learning of specific behaviors that may or may not generalize? Or, do we want to build these healthy foundations? How ambitious do we want to be? Some of this gets determined by what we think children are capable of – children with autistic spectrum disorders – are they capable of mastering the healthy foundations for relating, communicating, and thinking? Or are they only capable of mastering specific behaviors? So this gets into our thinking as well. So we need to come to grips with or address this question of what our goals are because measurement has to measure what we want to measure what we think is important. We don't want to measure just what is measurable if it is not going to be meaningful to us.


So what is our main goal? This question I find often gets finessed or sidetracked as we get to the issue of what we can measure. Once we answer the question of what we want to measure, what is meaningful, what are our goals for the children, then we can get into the question of measurement. So again, I urge all administrative, educators, parents, therapists, and any other colleagues interested in children with special needs or autistic spectrum disorders to be clear on what their goals are. The choices I am laying out are:

1. Specific, discrete behaviors where you look at what typical children do and try to, in a sense, use your green thumb to have the children you are working with approximate these same behaviors but without really knowing, necessarily, they are understanding what they are doing or why they are doing it or how they are feeling or thinking.

2. Building the foundations for healthy development, and the question that goes with that are our children with autistic spectrum disorders and other special needs conditions capable of mastering these foundations of healthy development. Even if a child can't progress all the way up the ladder to the highest levels, can they master some parts of the sequence? Can we know how high they can go until we try because we are not in a horse race; there is no timeline here and the child doesn't have to master it by a certain age. We know the brain and the mind keep developing way into adolescence and adulthood. So can they master these, and are those legitimate goals to have?

So that is the critical question we must ask ourselves. An interesting aspect of this is the fact that if we look at the core deficits in autism and what defines autism, there are deficits not so much in specific behaviors like looking or sitting at a desk and complying or being able to imitate or sort shapes, or even utter words. The core deficits have to do with engaging with others in a deep and intimate way, with reciprocal interactions which means simply back-and-forth interaction with a lot of emotional gesturing, a lot of smiles, frowns, smirks, and vocalizations in a rapid back-and-forth way where each child and adult are cuing off one another so it is a reciprocal back-and-forth interaction with being imaginative and using language and ideas meaningfully and creatively, and being able to progress up to then the higher levels of thinking including abstract thinking. And, being able to make inferences, for example; to infer that when a person says something with a certain look on their face, they really mean something else; to be able to read their emotional cues through their facial expressions; to be able to empathize and put yourself in someone else's shoes and see how they feel, which is highlighted by the people who have done theory of mind work.

So these are really the core deficit areas – to be able to engage, be involved in a reciprocal, back-and-forth interaction, to use ideas creatively, logically, and abstractly, and to be empathetic. These core deficits are one in the same. In other words, the other side of the coin of the core deficits are the foundations for healthy development. So in trying to overcome or advance or make progress with a child who has a certain disorder, again, do we focus on the core deficits and see if we can overcome these or to what degree we can, i.e., build foundations for healthy development because these are one in the same, or




do we work on specific behaviors that we think are desirable but we're not sure build the foundations for healthy development. Obviously our techniques and how we work with the child will be driven by what our goals are but also what we choose to measure will often determine how we work with a child and also what our goals are because often educators and parents and others will work towards the goals. So if compliance is a goal, you'll work on having a child sit and look. If engagement and reciprocal interaction and joint attention is the goal and creative play is the goal that will be a very different set of goals.

So in just a moment we are going to talk about if we can measure these larger set of goals. We know we can measure more straightforward, behavioral set of goals because it just involves counting increasing frequencies of certain predefined behaviors. But can we measure these more complex foundations for healthy development or the core deficits? So in answer to the question, Can we measure the healthy foundations for development or progress in overcoming the core deficits, the answer is a resounding "Yes!" These are measurable. They are harder to measure. They are more complex. They involve really rating more complex capacities like the child's ability to engage or enter into a reciprocal back-and-forth interaction or enter into shared social problem solving or multiple frames of joint attention or be a creative player with an adult, or be logical in their thinking. But now we have a number of rating scales including the Social Emotional Growth Chart for children in the early years of life which really covers, in terms of developmental age, the first 3-4 years of life in terms of developmental capacities, so it may apply for older children too, that was field tested by the Psychological Corporation of America, part of Harcourt Assessment, Incorporated on a large population. It is, interestingly, very reliable and discriminating which children are at risk for evidencing autistic spectrum disorders and it can do this with some new research we got on the cut-off scores with over 90% of specificity. We also have a number of very similar rating scales – Social Emotional Growth Charts for school aged children and even for adolescents and adults. We also have our Functional Emotional Assessment Scale where videotapes can be analyzed microscopically and these same characteristics rated. These look at the building blocks of healthy emotional, social, and intellectual functioning – attention, engagement, two-way reciprocal interaction, shared social problem solving, creative use of ideas, and logical use of ideas, and then higher levels of logical and abstract thinking, including the ability to make inferences and empathize with others. So these can be measured by that scale.

Interestingly, in the well-known scales used for diagnosing autism – the ADI-R (Autism Diagnostic Interview – Revised) and ADOS (Autism Diagnostic Observation Schedule), in the ADOS there are some very good social interaction scales that can be applied and used in this way. There are other reliable tools that can be used to assess the foundations for healthy development including pragmatic language, different aspects of intellectual functioning, different aspects of sensory and motor functioning as well as social and emotional functioning. There is really wide literature now in the ways to measure these. We have a number of protocols that I can make available to anyone who asks to measure progress looking at the healthy foundations for development.

So schools can monitor children's progress for building foundations for healthy development and educational progress, and parents can measure these if they want to be accountable to the county, state, or other funding agencies that are helping them with their programs. Therapists can use these. The question really is, are we ready to embrace these goals of building the foundations for healthy development and then using the tools that we have available? Now some may argue that these are more cumbersome to use, these are harder to use, they require reliable judgments; for example in rating engagement or rating a child's ability for creative and imaginative play or reciprocal interaction, one is often rating them on a scale from "none of the time" to "hardly" to "a little bit of the time" to "most of the time." And you can see progress



where a child is doing it some of the time to where the child is doing it most of the time. We have shown that these can be rated reliably, but the question is, do we want to embrace the complexity of complex measurements?

We also noticed that parents can rate these on our Social Emotional Growth Charts. Parents were rating the child's behavior and we now have lots of evidence that the parent's ratings are supported by professional team ratings, for example, nice correlations between the scores on CARS (Childhood Autism Rating Scale) and the Functional Emotional Growth Chart. The question is, do we want to embrace this more complex approach with a set of more complex set of goals for our children and more ambitious goals, or do we want to do what has, perhaps, been done in the past, and by definition what we have been doing has always been easier.

The answer to this question, do we want to, boils down to a fundamental issue of what do we think the children that we work with who have special needs; who have autistic spectrum disorders, are capable of. If they are truly capable of progressing and mastering the foundations for healthy development, and overcoming to a significant degree some of them and to some degree some of the core deficits of autistic spectrum disorders, if we believe they are capable of this, which I personally do believe and I think we have now demonstrated this, we are obligated to shift our goals, and therefore shift what we measure. We have new research now showing that children can make progress in mastering the healthy foundations. We just finished some studies showing nice changes even in one year of working on the healthy foundations for development. We have also done brain imaging studies on a group of children – actually two groups that demonstrate nicely that these gains in social and emotional functioning and intellectual functioning are accompanied by changes in areas of the brain and brain imaging that have to do with emotional and social processes; areas that we thought were inactive in children with autistic spectrum disorders are, for example, showing to be active. And a group of middle to late adolescence have shown enormous progress who were at the top of the group of children making progress. These changes in brain functioning after many years of not having any therapy are profound and similar to typical children, and are in some respects more active than in many typical children. And these are children showing high levels of empathy and abstract thinking and capacity for making inferences and have a sense of humor and have lots of friends, and many of them are academic superstars as well as well as a lot of them functioning quite competently academically.

It has been demonstrated that while different groups of children will make different degrees of progress, some children can make enormous progress, all children can make some progress, they can make progress in the areas of building healthy foundations, or becoming to varying degrees of core deficits of ASD and other special needs conditions. So a logical conclusion is we are obligated to make these our new goals because the children can do it and we are obligated to measure these with the best tools available. The tools will continuously be refined and improved, but what is not an option is to simply measure what is measurable and measure what may not be part of the goals of what we should be considering as most relevant for our children with ASD and other special needs conditions.

Thank you for joining us today.