

Web-Based Radio Show

Series on Learning Differences, Learning Challenges, and Learning Strengths:

Multi-Causal Thinking and Gray Area and Comparative Thinking


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Good morning. This is Dr. Greenspan welcoming you to our web-based radio show. Thank you for joining us today. As you may recall we are working on a series of shows talking about approaches to learning and these comments are appropriate for children with special needs, many of whom have developed to the point where they are verbal and can participate in academic and school activities, and they're also appropriate for children who don't have special needs, but who have learning differences, learning challenges, or learning strengths. So, these comments are really appropriate for all children.

As you may recall, the image the image that we've created over the last few weeks in this series of shows has been that of a learning tree, with a tree trunk having to do with the fundamental thinking and social and emotional skills that all children need for all activities, including academic activities; the roots, which are the ways in which the child processes information – auditory, visual-spatial, motor planning, and so forth; and the branches, which are the specific applications to reading, to math, to oral and written expression, to planning and executive functioning, to writing essays, and so forth. So, we're discussing how to understand the whole learning tree and the idea that we've been promoting and sharing is that if we can strengthen the trunk and the roots we then really build foundations for strong branches. But if we just work on the branches alone, without the trunk and the root system being strengthened, then we're trying to build a house without a strong foundation.

Now, we've been focusing first on the tree trunk, which is our critical thinking, emotional and social capacities, which we conceptualize as functional emotional developmental capacities. As you recall, these core six capacities and three more advanced ones are the ways in which the human mind orchestrates its sensory and its




motor and its language and cognitive and learning capacities all together in one organized, orchestrated mental team. Last week we covered the first five to six of these stages – the fundamentals. We got up to talking about logical thinking and how you connect ideas together.

Today we're going to focus on the three more advanced levels – multi-causal thinking, gray area and comparative thinking, and thinking off an internal standard. What we showed last time, and what we're going to show this time, is that as we strengthen these fundamental capacities – and the reason why we're focusing first on the tree trunk is because, automatically, as we strengthen the tree trunk, we strengthen the root system, as well, and we also strengthen many of the branches. So, starting off with the tree trunk is a good way to think about the learning tree, although in practice we can approach all three parts of the tree – the trunk, the roots, and the branches – simultaneously, giving an equal amount of attention to each, as long as we're not forgetting the importance of the trunk and the root system because that tends to get short shrift sometimes as we focus on the homework assignment of the day or as we focus on memorizing the list of names for the geography quiz. That can be a very short-sighted approach, particularly to children with learning challenges or learning differences.

As you may recall, also, last time, we also showed the importance of not only strengthening the tree trunk capacities – the fundamental thinking and emotional and social capacities – but strengthening them in relationship to a broad range of emotional and social challenges and a broad range of intellectual challenges. So, we're not just interested in a child who can connect ideas together; we want him to be able to connect ideas together in terms of his visual thinking, as well as his auditory or verbal thinking. We want him to be able to connect ideas together in terms of how he moves his body and plans and executes actions. We want him to be able to connect ideas together in terms of how he organizes building a castle or how he organizes a sculpture or a picture, or how he navigates his way around the neighborhood and finds different places, or how he searches for hidden objects or negotiates a treasure-hunt game. So, we want to be able not just to talk a good game, but basically to see a good game and take actions in an organized, logical way. Let's go to our next, more advanced stages.


The next stage we call multi-causal thinking. That's where a child can give you multiple reasons for an event or for a feeling or as part of an explanation. So, when you ask the child, "Gee, Johnny, why do you want to go outside?" the child who's just



learning to connect ideas together will say, “Because I want to play.” The child who’s multi-causal may start off with, “Oh, because I want to play,” and then if you say, “Well, can you think of other reasons?” “Well, because it’s sunny and nice and it’s healthy for me and I’ll get a lot of exercise,” and so forth and so on. He’ll give you multiple reasons. If you say, “Well, why do you want to play? What’s great about playing?” “Well, Mom, you know I like to climb on the rope ladder,” or “I like to swing or I like to ride my bike.” He’ll give you, again, multiple examples.

Now, one way to support and promote multi-causal thinking once a child can show you the beginning capacities to connect ideas together, i.e., once he can answer “why” questions, is to have longer conversations where you simply give the child practice and you’re simply curious and interested in the child’s different reasons. “Oh, I know you have lots of reasons why you like to go outside!” You do it enthusiastically, with support. It doesn’t even have to be a question, it can be, “Oh, I bet you’ve got lots of other reasons, too, to go outside.” Where the child needs help, you go to multiple choice and you can suggest some possibilities and have him pick which ones work for him, but in doing that the rule is always give a good choice first and the weak choice or bad choice second so the child can’t just say the last thing. So, if the child answers the question, “Why do you want to go outside to play?” by saying, “Because I want to play” and you say, “Oh, well, you must have other reasons, too!” and he says, “I can’t think of any,” you can say, “Well, gee, do you like to go outside to get exercise or to go to sleep?” “Oh, getting exercise is pretty good, Mom!” Okay, so there you’re suggesting possibilities but he still has to think and you’re giving him the good answer first and the weak one, second. Then you can come up with other things, too. “Well, do you like to go outside because it’s fresh air and it just feels better than in the house?” “Well, no, Mom, that’s not important to me. I like the air just as well in here.” That’s a fine answer, too, because again the child is thinking and he’s saying no, that’s not a good reason for me. That’s even a better answer and a better thinking response.


So, we want to promote multi-causal thinking. We want to promote this, again, in all the emotional areas of life and across all the sensory processing and motor capacities, as well as language capacities. So we’re not just promoting it in a narrow sense; we’re promoting it in relationship to all the roots that we’re going to strengthen individually, which I’ll come to probably either later today or in next week’s show, but we’re beginning to strengthen the roots in just the way we approach the tree trunk. So, for example, just to strengthen the social and emotional capacities, we’re going to be



very curious about the child's many reasons for wanting to play with Johnny or Susie, so, "Gee, who do you want to have over today for a play date?" He might answer, "How about Johnny?" "Why did you pick Johnny? Why is he the one you want to have over to play?" "Well, because I like Johnny and we like the same games." You say, "Well, for example?" He might say, "Well, we both like to do this special computer game, blah blah blah," and that would be one causal answer. Then you could say, "Gee, are there other things about Johnny that make you want to choose him? Why else do you want to invite Johnny over?" "Well, he plays nicely. He doesn't get aggressive or he doesn't push or he'll play what I want to play." "Oh, well that's pretty good, too. That's another good reason. I'll bet you've got some more." "Well, he's just a lot of fun. We like talking together," etc. Now, different children come up with different reasons. Some will come up with two or three; some can give you five or six. The idea is to get the child thinking in a more elaborate way about their friends and about peers.

You want to also go into the realm of feelings. You can ask a child who's looking a little sad or glum, "Gee, why are you looking so sad today, sweetheart?" "Oh, I have no one to play with," or "The kids at school were mean." "Oh, what happened?" So, we get into sad feelings and, again, all the other reasons why you're feeling sad today. "Well, the kids at school were mean and I'm bored." If a child is irritable and kind of snappy – "Sweetheart, why are you so angry today? Or "You look like you're ready to bite my head off. Why? How come?" "Well, it's been a bad day, Mom. They gave us too much work at school" or "Susie was teasing me." "Gee, I bet there are other things that may have made you irritable today!" and go after more reasons.


So whether it's anger or irritability or sadness or happiness, "Gee, you look like you're in a good mood today! Why so cheerful?" "Well, we've got Sally's birthday party at school and her mother always brings great cookies." "Anything else that's making you happy today?" "Well, we get off early and I get to come home and play," etc. So, it's important to talk about happy feelings and sad feelings because that all strengthens the ability to apply multi-causal thinking to our emotional lives and when you can strengthen your multi-causal thinking in relationship to your emotional life, you really can strengthen it in relationship to all aspects of your life. For example, if you understand your own feelings – happy, sad, angry, sometimes conflicted, mixed feelings, "Well, Mommy, I like Johnny sometimes, but sometimes I don't – it depends on how he plays or whether he's nice to me. Sometimes he ignores me at school." Here a child is learning about conflict. That's going to help the child interpret literature when he reads



a novel and has to understand the feelings and motives of the characters in the book, he'll be able to fall back on understanding his own feelings. It's also with multi-causal thinking you can begin asking the child, "How do you think the other child feels?" or "Why do you think Mark was ignoring you today?" "Well, he loves to play soccer and I don't play soccer and he seemed to be wanting to get picked for soccer so he wasn't looking at me, he was only talking to Ricky, who was picking people for the soccer team." "How do you think he feels towards you?" "Well, I think he probably likes me but he wasn't thinking about me." Okay, well, that helps the child understand other children and put his own feelings into perspective – that he's not always going to be the center of their universe.


Such discussions enable the child to understand the world he lives in because it's a world of people with motives and feelings and social behaviors. It's not only good for social skills and good for emotional coping, it's also very good for understanding literature and history because, after all, you can understand Mark Twain's characters, like Huck Finn, or you can understand the motives of any of the characters in a good novel, whether it's a children's novel or later on in high school, a more adult type novel, you're going to need to understand the inner lives of human beings. This starts with multi-causal thinking in the realm of feeling. So, history, literature, and later on in college, it helps a child understand other cultures or cultural anthropology. The humanities and the social sciences all depend on this fundamental understanding of what we call emotional thinking – thinking about your emotions and feelings. But, here, too, we're not going to stop doing our multi-causal thinking just with discussions about friends and feelings and basic behaviors like why you want to go outside, but we're going to extend it to the different processing domains and strengthen that root system through the tree trunk because as we go up higher on the tree trunk we automatically strengthen those roots, but we need to focus on it.

So, we want not just multi-causal thinking when it comes to verbal explanations, however elegant they may be, but when it comes to what we call visual-spatial thinking. For example, the child is building a house for his action figures or building a fort to protect the good action figures from the bad action figures – the "good guys" from the "bad" – and he and Daddy are doing a pretend drama. In the construction of the fort, what's the purpose of this fence or this gadget or that gadget? I'll give a concrete example – I was playing with a six-year old and he made me the bad guy and he was the good guy and he had all kinds of special weapons that he created through Legos and



blocks and other materials we had at hand – so he had a special attack machine that could do laser beams and all kinds of interesting things, and I said, “Okay, I’ve got my special space rocket launcher that’s going to rain rockets on your fort!” So he created an entire rocket shield. But I didn’t stop and let him do just a verbal description; I said, “Well, where is it?” So then he had to construct out of the Legos a rocket shield. I said, “Well, but how does that work together with your laser beams?” So then he figured it out and said, “You see my laser beams, I can use them to knock out your men on the ground, but I can also turn them up to the sky and they can show the rockets coming in and when to put up my rocket shield,” and then he designed that. Now what he was doing was connecting his rocket ship with his laser beams. Through other challenges he started connecting other physical equipment together, and we had now multi-causal thinking in terms of the visual-spatial domain because he was creating these visually complex interrelated figures that required some architectural skill and I was challenging him, obviously, to do that.


At the same time I was challenging him to do that, I was also challenging his motor planning and his sequencing because he had to use his motor system – his actions – to create these complex Lego designs. I also at one point took a time-out and said, “Gee, that’s an interesting design. That might be useful for the government. Could you draw that?” and he took great pride and actually then drew his design and we worked on his fine motor skills, again off the play and using his interest in visual-spatial conceptualization and now we were doing it in the fine motor area, so we were motor planning and sequencing in gross and fine motor areas. Now, with the same child later on when the play got real active and we were bombing each other with nerf balls, etc., I challenged him to make up some rules so when he caught my rocket he got two points; if he didn’t, he lost a point, and vice-versa. Now we got into gross motor activities – throwing and catching balls – and if he could bat it away and hit me as he batted it away with his swatter, he got four points. So, we had eye-hand coordination, eye tracking, quick movement, etc., and we were doing a lot of complex, gross motor planning in the context of a type of sport, almost, but it was around fantasy play, so he didn’t feel he was being a reluctant participant in a sports activity – and this is a child who didn’t like sports and his father had complained that he couldn’t get him to go out and play soccer or baseball because he wasn’t terribly gifted in terms of his hand-eye coordination or foot-eye coordination, but in the context of a game where the nerf balls were rockets, he loved it and he made sure the nerf balls were big enough and his father was big enough that he could be successful most of the time.




Here, too, we kept making the rules more complicated so he had to do more complex motor activities and eventually we built all kinds of obstacle courses for places he could hide from attacks or where he could sneak up on the enemy and launch his own attacks and that also required intricate visual-spatial and motor-planning activities – it required him swinging and moving and crawling, all of which were things that were recommended by his physical and occupational therapists, as well as good for his coordination. So, we got him walking over a balance beam, hopping on one leg, skipping – all kinds of good things. We built in a whole motor planning workout that included fine and gross motor into the imaginative play.

So, what we had here was – at the level of multi-causal thinking – a lot of emotional range. We had different kinds of social challenges, like peer friendships and playing and what happens when you feel excluded sometimes. We also had, though, bringing the visual-spatial and the motor into the equation. This child was also very sensory craving sometimes and could get active and impulsive, and at other times he could be very sensory over reactive – it depends on the system. He tended to be over reactive to certain kinds of sounds, but craved lots of touch and movement, so he was a mix in terms of his reactivity. So we wanted to also teach him sensory modulation, doing things like fast, slow, super-slow with movement, with sound, with him making sounds, etc. because that teaches him to regulate the systems that can get out of regulation because he craves sensation or because he gets overloaded and overwhelmed. So, we built that – slow motion, medium-speed, fast games – into our the rules of engagement in this battle that was being created. We really got a lot of sensory modulation activities, too. So, for example, automatically during the war the rules are changed and everything has to go slow motion or medium speed or fast motion and that just became part of the rules and of the games that were being created. Sometimes we used music to pace the cadence and also increase his ability to move in terms of rhythm and timing.

So, as you can see we created a full workout for his mental team. I should add that in the motor exercise we made sure we were doing not only balance things, like walking across a balance beam, standing on one leg with our eyes closed, but we also did a lot of crossing the mid-line kinds of activities, as well, so he would invert the left and right sides of his body and we made sure, as I mentioned before, we did a lot of visual-eye tracking because he had trouble with that. So it was not just throwing and catching a ball, but other things that required coordinating vision with movement. We were working on the floor with crawling and sitting, as well as running, hopping, and




skipping. So, this was really a full workout of all his roots, but in the context of strengthening his tree trunk because it was all done as part of multi-causal thinking, so we were getting two for one. This was a great workout for these core capacities. At the same time, without even trying, we were helping a number of his branches because every time he talked about the motives of his friends or how they felt or how he felt he was improving his reading comprehension – because eventually he’s going to have to apply that level of thinking to understand things that he did. As I pointed out before, the level of reading comprehension can be no greater than your level of thinking, and your level of thinking determines your level of reading comprehension. In other words, there are two aspects to reading: One is decoding the sounds and the letters and figuring out the words they represent, but then you have to understand the meaning of those words and that requires thinking skills because words have meanings and every meaning is thoughtful. In other words, an apple is round and red, but that’s hardly a very thoughtful description of an apple. A thoughtful description involves giving it different functional properties – how it tastes, how it feels, what we use it for, how we grow it, etc. So, every time we improve our understanding of a word or a concept we’re into the world of thinking. When we strengthen our tree trunk we’re strengthening fundamental thinking, we’re strengthening reading comprehension, and when we strengthen those visual-spatial capacities, we’re strengthening our sense of quantity and our sense of time because time and quantity depends on being able to see and understand how space is organized. That may not be obvious to everyone, but let me give you an example. Just as a child learns “a lot” versus “a little” they see something that takes up a lot of space versus a little space and that child will come to know and feel something is big versus something is little. So, it’s something you know experientially, not just as a memorized definition – that ten is more than three because you would be inundated with millions of these definitions if you couldn’t really picture what “more” versus “less” is for you. So, every time we do these spatial games we’re strengthening mathematical reasoning. The same thing occurs with time. Time is something that exists in a feeling sense and we relate it to experiences we have in the real world, like an hour-long TV show or how long a videotape takes or how long lunch takes – that’s how we get our relative sense of time. So the concept of quantity and the concept of time rely on experiencing the world and experiencing the world in more than just verbal terms. So, when we say, “Three seconds to launch the rocket,” that’s giving the sense of time and we bring that into the play as well.



So, here what we see again – I know I’m repeating myself but I think this is a key point that we’re making – is that multi-causal thinking involves the tree trunk, involves the world of feelings, but also involves all the different roots.

Now the next level we get to we call comparative and gray area thinking. Here we’re asking the child to describe A and B and as he does, we’re going to also ask him the degree to which A is different from B, using gray area thinking. So, a concrete example – we’ll say to a child, “Well, who do you want to come over?” “Oh, I want Mark to come over today.” “Who else might you consider?” “Well, there’s also Paul, but I would choose Mark.” Okay, this is a perfect opportunity: “Well, gee, why would you rather have Mark today than Paul?” Now, in order to answer that, the child is getting into comparative thinking. So the child might say, “Well, because Mark plays a little nicer,” or “He likes the same games that I do, whereas Paul doesn’t.” Then the child is really comparing two quite different things. On the other hand, a child may say, “Well, I like Mark because he plays nice.” There, he’s sort of saying the same thing, but he’s not really comparing him to Paul; he’s just talking about Mark and that’s typically what you’ll hear the first time you raise a comparative question because children are still in just the plain old causal sequence and not yet into multi-causal thinking or gray area thinking. So you’ll have to say, “Well, I hear Mark is nice and you want to have him over, but why would you choose him over Paul?” “Well, Mark is nice and he likes to place game X or game Y with me and I like to play that, too.” “Well, that’s great, sweetheart, and I can see why you like Mark, but you still haven’t told me why Mark is your choice over Paul.” “Well, Paul doesn’t like those games.” “Oh, he doesn’t.” Okay, now the child is beginning to compare, so then you can play dumb. “Let me see if I’ve got this. So why do you want Mark over Paul?” “Because Mark plays the things I like to play and Paul doesn’t” and now the child is really comparing. Or the child may finally say, “Well, Mark’s just nicer,” and it’s *nicer* than Paul, rather than just, “Mark is nice” that shows you the child is comparing two things. If the child just says, “Mark’s nice,” he’s not comparing. If he says, “He’s nicer” or “better” or “more fun,” then he’s comparing two things. So you kind of stay with it and it takes a while for him to get the hang of the comparative level and, typically, we don’t see the comparative level until somewhere around ages six to eight, but sometimes we’ll see it even in a four and five-year old.


Once we get the comparative thinking, we can go after the degrees. “Well, how much nicer is Mark than Paul?” Or “How much more ‘funner’ is Mark than Paul?” “Oh, lots!” “Well, can you show me with your hands?” and the most is stretching both hands




real far apart and the child may do it half-way or two-thirds way or three-quarters-way, and as you have the child show you with his hands how much nicer or how much more fun, or how angry are you today, or how grumpy are you today or how happy are you compared to other times, the child's getting a sense of quantity in terms of degrees of things. Now what this does is it helps the child progress from being an all-or-nothing thinker, which is seeing the world in all-or-nothing terms – just like in the last election we talked about the red states and the blue states as though there were only two possibilities – it helps the child see that there are really shades of gray and it helps the child become a subtle, nuanced thinker rather than just an all-or-nothing thinker where they see the world as this way or that way because when you see all or nothing it means you're very concrete in your approach to life. There are certain things that maybe have an all or nothing quality, as well, like you should not hurt someone else, but most of life and most of intellectual life operates in the gray zone, meaning that there are relative shades that have to be considered in nuanced understanding, so if you're going to discuss different economic policies or different interpretations of history or different meanings that may have often been given to his novel or his characters, it's going to be a little bit of this and a little bit of that, it's going to be a subtle, nuanced discussion. Again, those things that are really all or nothing or deserve all or nothing perspectives are limited to a few areas. So, we want to help our children become subtle, nuanced thinkers, rather than remain as polarized, all-or-nothing thinkers. When they're younger – four and five years old – we're expecting them to be all or nothing and we see that associated with negativism and stubbornness because it's either “my way or the highway.” But if we want that my way or the highway approach to give way to more reason, debate, negotiation, and compromise – all good things – then we have to get into the gray area thinking.

So a good opportunity to do that is when we're doing our comparative thinking to find out how much more fun is Mark and why is he that much more fun. It's in these discussions that we really “make hay.” We're going to take a 30-second break and when I come back I'm going to explain how we apply comparative and gray area thinking to the different emotional realms and also to all the roots – all the sensory, motor, and visual-spatial and sensory modulation capacities.


Okay, we're returning from our 30-second break; thank you for being patient. Now we're going to discuss how we're going to expand this capacity for comparative thinking and gray area thinking or technically relativistic thinking into the different



domains that the child has to negotiate and has to understand. Many of you may know, just as a side note, that the famous psychologist Jean Piaget talked about relativistic thinking in school-age children and although he didn't think of it this way, he focused on it mostly in terms of the visual-spatial world, in understanding relative degrees in terms of quantity concepts. He didn't discuss it much in terms of the emotional world and didn't discuss it in terms of the motor world of motor planning and sequencing. What we've done historically is show that underlying all the cognitive abilities, including those described by Piaget, is the child's emotions – that the child first learns about a more advanced way of thinking not in terms of how he operates physically on the world with his motor system and with his visual-spatial thinking, but first with the way he applies and uses his emotions and uses the emotions in evermore complex ways. So, first, as we look at how we expand the comparative and gray-area thinking, let's think of it in terms of, first, the emotional range. Just like for multi-causal thinking we want to apply this to, certainly, social relationships and peer relationships and why you like one child better than another, but also to all the different feelings that come up in social relationships and then we expand the application to feelings. "Well, why does Paul make you feel more frustrated than Mark sometimes?" Or, "Why does Paul get you feeling more rejected than Mark or more angry? What's the difference between the two?" So, we go into the different feelings of life. For example, the child might say, "Well, you know Mark almost always plays with me when I ask him to, but Paul only plays with me sometimes and he really likes playing with some of the other kids better and I'm sort of a second choice for him, so I usually feel a little bit bad and I feel like I'm not his first choice, like he really doesn't like me that much." Well, that's a good, eloquent explanation and it may even be accurate. Then we can take it a little further and say, "Well, what are the different feelings you have inside?" "Well, I feel a little sad, but I feel a little angry, too, sometimes, because I want to get even and not play with him when he wants to play with me, but sometimes I have no one else to play with, so I do," so we go after more feelings. "How sad do you feel?" "Well, not that sad because I usually have Mark – if not right then, then later in the day – and I have other friends so it makes me feel a little sad." "Well, show me with your hands," and the child may show just a little bit. "How annoyed or angry do you get?" "Well, just a little bit. I kind of want to get even, but I don't want to punch him or kick him." "Well, is there anyone that you want to punch and kick?" "Yeah, well, Tommy really teases and he pushes and stuff, and I would really like to hit him, but he's bigger than me so I don't because he would beat me up." "Well, how angry do you get in that situation?" and then the child puts his




hands out all the way. Well, this is a child who is comfortable with all his feelings, and is realistic, “I’m not going to get into a fight with this guy because he’ll demolish me,” and he’s showing the degrees to which he’s angry, to which he’s sad, so he’s comparing and he’s also being gray area and relativistic. Now, this sort of ideal picture is not easy because most kids are not that comfortable, nor are most adults, with all their feelings and usually can’t describe the shades of gray for anger and for sadness and for rejection or for happiness or joy because it’s just as important to talk about the happy feelings, “Well, when you’re playing with Mark, how much happier are you than when you play with Paul?” “Oh, well, this much more, Mom, because when we’re playing this Nintendo game together it’s so much fun because we’re almost equal and sometimes I win or sometimes he wins and we never know who’s going to win and it’s very exciting, but when I play with Paul, if he’s not winning he’ll stop playing and he’ll start teasing and getting a little mean and he’ll want to boss me around and I don’t like to be bossed. So the reason why I like Mark better and it makes me a lot happier is because he plays nicely and even if he loses he doesn’t get upset, but Paul will get bossy and mean when he loses and it’s no fun. But I like him some of the time, so he’s like this and Mark’s like that,” and he shows you with his hands how much. So, again, in this ideal prototype we have all the feelings that can be described in a gray-area way and in a comparative way and usually these two come in together around the same age, so usually between the ages of 6-7 and 9-10 children are getting better and better at the comparative and gray area thinking. The reason why I give you a big age range here is because these are constantly developing in more complex ways, so we see the early signs of it – in some kids as early as age six– but often not until seven or eight, and then we certainly see it develop as the child gets to be nine and ten years old. So you want to see a general trend in the right direction. It’s not critical whether the child is first on the block to be a comparative or gray-area thinker, but just that he’s moving in the right direction because there are many adults who never develop very good comparative and gray-area thinking and they live in an all-or-nothing world. So an adult can be very bright in conventional terms – in terms of memorizing facts and even be competent in a profession and be a daddy or a mommy in their family – but still be a concrete thinker because they can be logical and balance their checkbook and go to work and carry out a task, but they won’t be as good at it as a gray-area or comparative thinker or as good as they could be if they really could progress to these more advanced levels. So, these are not skills that we want to pigeonhole that have to be there by a fixed age, but we want to know that, generally speaking, we want to see them on the ascendancy, on the rise,



in that age range of six to 10. We see gray-area thinking and comparative thinking coming in a little bit after the multi-causal thinking.

How do we apply this to the different roots? Well, just like we did for multi-causal thinking, if we're building two forts with different offensive and defensive weapons systems, with lasers and bombs and anti-laser shields, etc., how much better is yours than mine? And why is yours better than mine? The child not only verbally compares the two – why his laser shield is stronger than my offensive weapon – so my weapons won't get through to his laser shield or my lasers won't get through, but also then shows me physically with his spatial configuration, "Well, you see, mine is bigger and you see it covers more area. See, your lasers can only go into this narrow, small area and my thing is big and covers this large area here." So you challenge the child to show you spatially why his configuration is better, and then often you challenge the child to create new configurations in space and compare them to your configurations and then discuss them in terms of degree – the degree to which his spatial contraption is better than your spatial contraption. So, it's basically taking the same examples we did for the multi-causal thinking and applying it now to comparisons between two systems and looking at degrees to which one system is better and then building the child's system, usually, so he's the winner in such a way that it has relatively more advantages over your system – how are we going to get it even stronger?


Similarly, when it comes to building the obstacle courses and practicing the motor planning and doing all the exercises we did for multi-causal thinking – the batting the rockets away, the catching the rockets – the same principle applies. We'll now compare different possible obstacle courses. We'll ask the child to compare what he's doing on it to what we're doing on it and we'll deliberately make ourselves worse than he so he can tell us how much better he is than we are as he's doing the motor stuff or as he's drawing his contraptions and we're drawing our contraptions. So, in the fine motor and the gross motor and negotiating the obstacle courses and the batting the rockets away, i.e., the nerf balls, we're now comparing movement patterns, i.e., motor planning and sequencing. We're comparing visual-spatial configurations that we've created and drawn. Now when we do our sensory modulation exercises – fast, slow, super slow; loud, soft, super soft – we're going to have the child describe which he likes better and why and why the soft sound is nicer than the louder sound, or why he likes to move fast all the time or why that's better than moving slower, why he likes to bang into things, i.e., the sensory craving child, so he'll now become a comparative descriptor



of his own sensory system and tell you the degree to which he likes fast versus slow or a big bear hug versus a light tickle, etc., etc. So now the child becomes a comparative evaluator of his own sensory system, which is an excellent tool for the child to have.

So, now we're strengthening the roots. We're strengthening the language and auditory processing part of the root system all the time in our discussions of anything. So we're strengthening the verbal part in everything we do, but if we want to target that we might be playing treasure hunt games with more and more complex instructions and two alternative pathways to the treasure and the child evaluates which pathway to the treasure or which sort of clues he wants to follow, the A clues or the B clues, and he has to make a choice and then discuss which choice he thinks will be the better choice and why and then he can experiment using Group A versus Group B as he tries to find the treasure. One involves going through the garage and around the back of the house. The other involves going out the front of the house and up the driveway, let's say, and he has to discuss in advance which one he's going to choose and why and after he experiments with both he tells us which one was better and why and how much better. So, now again that's a verbal and visual-spatial and motor task all at the same time.

So, we can create nuanced additions off any fun activity to strengthen all these roots. The interesting thing is, from the child's point of view we're just having fun and from our point of view we're strengthening the roots of this academic and thinking and social and emotional skills. Just as we've shown for multi-causal thinking, as we strengthen these roots through the tree trunk, we're also strengthening the branches because now the child can compare two authors, Mark Twain versus Tolstoy – how did each one capture his times or his period in history? How did each one reflect his society? Now this is a question a child won't be asked until he's maybe a junior or senior in high school, or college, but you're setting the stage for that kind of comparative literary analysis way back when you ask him to compare Paul and Mark. You're going to help the child with his calculus, which involves understanding the space beneath a curving line, because we're dealing with all kinds of spatial configurations in your anti-laser weapons. You're helping a child appreciate concepts in science that require visual-spatial thinking. So, we're going to be strengthening the child's understanding of culture – comparative cultural analysis; history – comparing two periods of history; literature – the motive of characters and intentions of authors, all by helping a child become a gray-area, subtle, nuanced, comparative thinker. If you look later, academic-wise, it often involves comparison and subtle, nuanced gray-area thinking. Again, to repeat, we live



life in the gray zone for the most part, except for the few rules that have to be all or nothing for societies to work.

With that, let me call today's session to a conclusion. Next week we'll go into the third advanced level – thinking off an internal standard or reflective thinking. This is ordinarily achieved between ages nine and 10 and 12 and 13, so it's a more advanced skill, but this allows a child to evaluate his own behavior and thoughts and feelings and performance, and really take a reflective view on life, which is essential for all advanced academic activities. Also, I want to share with you that starting next week we're going to be changing the time of the show. We're going to move from 10 to 11, instead of 10:30 to 11:30. For those of you on the east coast, we've been having the show from 10:30 to 11:30 every Thursday. Starting next week, we're going to have the show from 10 to 11 on Thursday. So, basically, we're moving it up a half-hour. For those on the west coast, it will be seven to eight in the morning instead of 7:30 to 8:30, but I imagine many of you on the west coast are archiving it. For those abroad in Europe who are five or six hours ahead of us, it will be a half-hour earlier in the afternoon, depending on how much ahead of us you are. Because we archive the show you can listen to us any time, so hopefully this will be convenient for some, although I imagine it will be a little less convenient for others.

Next week we look forward to your joining us. You'll be hearing from us at 10 o'clock in the morning. Please share this with your colleagues and friends – we'll be sending around an email to those on our mailing list. For those who are not on our email list, feel free to send us a note or email us or check www.icdl.com or www.floor-time.org for our address and you can send us your email addresses so we can keep you updated about the details of the radio show and also other new things that come up.

Thank you again and we will speak to you next week.