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Hello and welcome my name is Michele LaMarche. I'm a Board Certified Behavior Analyst and I'm here with Special Learning to talk about part two of a social skills webcast training series. Today we're going to focus on elementary age social skills. We've previously discussed toddler and preschool. Knowing that in that particular age group there were six or seven core skill abilities that we really wanted to focus on as it relates to our population with autism and increasing their abilities in those areas because we know that the literature tells us those are predictors of future success. Today we're going to move up that chain in that ladder in terms of age, we'll talk about elementary in particular. This one has a whole host because this is a much bigger age range that we're trying to cover of, you know, skills that we're going to talk about. But we're not gonna be able to get through all of them.

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So what we'll do is we'll focus on the main areas more as a concept and give some examples of some research methods that have been proven effective as well as give you lists of different skills that you may want to consider researching on your own in addition. And then also making sure that you're familiar with why those, each of those skills are important as well as maybe the best strategy to use that they've found so far. So we'll start going right about now. Remember that if you are here for continuing education credits, there is going to be a beginning and an end code in the PowerPoint presentation. Make sure you write that down so you can enter that later on. We also accept questions throughout the entire webcast, so please forward those as you have them. And I'll do my best to answer as we go or we can try and get you information later on following the completion of the webcast.

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So let's get started in talking about elementary-aged social skill development. First off, this is not real surprising to everyone, but it's a quick review. Social skills and autism spectrum disorders. We know that social skill deficits is one of the main characteristics of an autism spectrum disorder. And we know that, again, literature says there are certain social skills that have been shown to predict future success in language ability



and obviously social skill interaction, but also in academics. An individual likely has multiple areas of need here. So it's going to be I think challenging for behavior analyst to determine which social skills we should be working on first and foremost and figuring out how to best prioritize those and which ones may be prerequisites or precursor behaviors before we're going to introduce say the one we're working on right now. We'll talk a little bit about those things, but the literature is, you know, kind of iffy.

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There are some things that we can absolutely pinpoint in terms of the traditional developmental age that would be appropriate if you were following a typically developing child, but that doesn't necessarily mean that that correlates to a child with autism. So we'll look at the wide range of those skills that you'll need to teach and behaviors that you'll need to address. And we'll also look at how ongoing training is really typically something that you would expect to do with a person with autism. So even though you may be teaching those social skills upfront, you will probably need to continue that training in order to number one, ensure generalization, but also you'll find that there will be new deficits that will raise, you know that will be brought to your attention as the child gets older and increasingly interacts and integrates into their social and environment.

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So evidence does show, however, there's some good things about it, that social skills can be learned. The hard part is some of the things that are listed here, number one, they're complex. And number two, they're still being studied. So we're just still learning about the best way to teach these skills and make them functional and not just wrote responses. And they are also typically very difficult to teach. So often you need professionals that have maybe a higher understanding of the concepts and not necessarily an introductory you know, professional or therapist or what we consider home providers and those sorts of things or, or individuals because it may just be too complex and you have to make decisions in the moment. Although there are some strategies that are, you know, following curriculums. Those haven't necessarily shown to be the best ways to teach, although they are out there.



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We also know that treatment strategies will all vary dependent upon child abilities and cognitive level and language and their ability not only in terms of just overall language, but communication as well as linguistic performance and understanding. So there are some connections in that regard as well and it will potentially have an impact on their ability to be successful with some of the strategies and skills that we're going to talk about today. Some of the literature in fact implemented those strategies only with the high functioning autism population or Asperger syndrome population. And we're looking at a minimum IQ of seventy, which is not necessarily the only population we serve of, course, and it is our other, you know, set of individuals that need just as much help. So you may have to start a lot slower perhaps and really look at those precursor behaviors.

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Evidence also tells us that it is very difficult to generalize these particular skills. And many of the treatments or interventions that have been effective in the moment have not necessarily had longterm or wide effects. So that is something to keep in mind. And in general when you're talking about teaching social skills, finding the natural environment opportunities in order to work on those things can be rather difficult, especially when you're in a clinic situation or even when you're in a school situation and you don't necessarily have specific times set aside in order to work on these skills or peers that are trained in order to help work on these skills. So there are a lot of components that need to come into play. And so contriving natural opportunity to practice the skills can be somewhat hard. Learning to perform a social task does not necessarily mean that they have grasped that overall concept.

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So things that we'll talk about today are some of the higher level thinking skills that start to emerge even as early as three and four years old. But we're going to focus on them in the elementary area based on what we know in terms of children with autism and their responses to learning these skills and what mental age they were at when they started to emerge in this area. But knowing, say as an example, theory of mind and understanding that whole concept or the concept of symbolic play or even you know, things like you know executive functions for example, those areas, they're really broad and there are many tasks that may represent the concept of theory of mind or



executive functions. But just knowing how to do that task independently and you know, isolated on its own doesn't necessarily mean that there is a grasp of the overall, you know, theory that you're trying to get them to understand. So that's, that's something that literature hasn't really been able to show us so far in terms of what we've researched as well.

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Why is it so important for social skill development? While we know that social skills, obviously being a core deficit is an area we need to target, but also more and more over the last, say twenty years I think is really what we're looking at here in terms of the increase of inclusion. It's just increasing more and more. And we're expected to help our students, you know, integrate into those inclusive, you know, settings or regular education settings more and more and make that a successful time for them. So knowing the social skills up front is going to be crucial in their ability to do that. And I think we all again understand that this is an important area to focus on, but because of all the other variables in terms of how difficult it is to teach and how hard it is to generalize and how hard it is to do it in a natural environment, and you know just all of those things combined, we find that we spend more time preparing on academic behavior.

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And what we're finding is with that inclusion, however, there's going to be challenges if we're not prepared or if that child is not prepared with at least some foundational social skill abilities. So we know that in an education setting right now it is really highly encouraged that we work toward inclusion and or start there right from the beginning. But we also know based on the literature and probably even your own experiences, that inclusion is more than just a placement. It needs to be planned, it needs to be really structured in a manner that is going to be successful for the kids that we work with. And we need to also understand and teach those around us. Whether it be the special ed directors, principals, teachers, paraprofessionals, the whole team that we're working with that just because we're in an inclusive setting does not necessarily mean social skills will be established.

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You have to have the ability to respond in those situations and probably are going to need that specific training to do so whether it be through discrete trial methods or even through,



you know, maybe some more group situations, role plays using peer mediation, those sorts of things. So it is known that we have to actually teach the skills necessary in order for a child to interact with their peers. And that's something that when I have parents, you know, it was sharing their concerns about a clinic-based setting versus a school-based setting. You know, we always look at that, let's take a look. Do we have some of these prerequisite skills because just being in that environment doesn't mean that they're going to actually gain anything from that peer, you know, availability. But let's get them ready for that. And perhaps we can go you know, integrate there much more quickly.

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Or do we have a setting where it's going to support us being in there to teach those skills in that particular natural environment with the peers readily available. Successful inclusion there's just a few things we want to make sure we need to make, you know, get done on our checklist, that is, and that is teach the social skills necessary, integrate the students into typical classrooms. But typically that's also done over a period of time and not just all at once. It does involve other students, you know, in the classroom during all the different activities, learning the classroom routines of course, and hopefully you can then all get your entire classroom peer group involved as well. And we know that successful inclusion does promote frequent teaching opportunities. So when you have the ability to make this happen, it is going to benefit, you know, the individual that you're working with. And I think that pretty much everybody knows that

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Some difficulties if you are not preparing appropriately would be obviously some problem behaviors. And some of them we just list here as an example for those who may not have a lot of experience with inclusion, but that may be things like vocal protesting and aggression whenever asked to interact and perhaps, you know, lack of appropriate communication skills and ability to initiate a conversation or even respond to someone you know, conversing with you. Often you find that kids with autism spectrum disorders don't have a large repertoire of appropriate place skills and that makes it very difficult then for that inclusion because you're, at least in those early ages, you're spending a lot of time on that social engagement and learning all those social rules of turn-taking



and you know, being able to share as well as gain attention appropriately joint play. I mean we can keep going down that list, but if we don't have some of those play skills as well as you know, the social skills in their, in their foundational repertoire that you know, those very basic items, it's going to be more difficult to get them to interact in a pure environment and possibly cause actually problem behavior instead of what you were aiming for.

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And that was an increase in social skills since they're right there with their friends. In addition, we just want to also indicate that the literature is very clear that not engaging in social behaviors, not having theory of mind skills, not engaging in reciprocal interactions socially, it can result in a child's inability to engage successfully in cooperative activities. And one of the cooperative activities when you look at the play hierarchy of skills that we want to teach our kids typically starts with, you know, isolated play or independent play. And then we're looking at parallel play and then we'd look at you know, trying to do interactive play with somewhere in there. We fit in cooperative play as well. And that's one of the very first things that kids are going to learn to negotiate in say a preschool and elementary setting. So we want to make sure that everyone knows the lack of these skills is been shown to have an impact on a person's ability to do that successfully.

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Some of the literature did show however, that there are a few approaches that have been successfully implemented in an inclusion setting. As long as you had again, the right support structure, the peer models perhaps that were trained, you had specific time schedule that you could work on these skills. But it is possible, there are some strategies that we'll talk about today that are fairly easy to implement and don't require a lot of heavy training or really materials and you know, data collection and all that kind of thing. So you may find some, hopefully some golden nuggets as we go through a few of these items. Two in particular that have been found successful in teaching social skills are the discrete skill-based approach. So looking at a skill very specifically drilling it down and then teaching that one skill and then teaching another skill.

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So really a discrete trial type format. And this has been most successful for children that have little or no language ability or



their languages just emerging perhaps at this time. And that the social skill training does involve a lot of repetition and as well as, you know, incorporating the use of some of our other behavior analytic communal procedures like reinforcement and prompting and some of those things as well. There is a different approach, however, for some of the higher functioning kids with autism, and this is called the social thinking approach. We will talk about this today in pretty good detail I think. And this one has been found to be successful for that higher functioning population in the Asperger population that we work with. And it focuses on specific social cognitive tasks. So it's a lot more of, you know, talking, coaching interpreting and answering questions and those sorts of things for the child.

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That would be some of the things that they're expected to do. So you can see how a specific level of cognitive ability would be really important here and language ability would be important as well. But just because those two, you know, were referenced in this particular article, it doesn't mean they're the only two out there. And there are going to be several more, as I mentioned, that we're going to talk about today. Social skills in elementary age kiddos, when we look at this, there are several lacking skills. We know that some we're gonna isolate which ones we're going to focus on here, but there are some, you know some researchers that have identified some of the reasons behind possibly these deficits. And so we wanted to list a few of those out for you. Number one, we know that the kids just may not have those skills in their repertoire or they may not respond to approaches from others, you know, for example, in the first line here because they don't have that in their repertoire and they don't understand the expectations.

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And we haven't really taught those things. They also may not understand really the meaning of social skills. And what they're seeing in their environments and things that are listed here later on are things like social, you know, cues they may not recognize those social cues so then they don't know to respond to them and that can kind of get them, you know, in a sticky situation if you're trying to build social skills with their peers. And one of the other things that came up several as they may not really understand the language that's being used within that social interaction or what we were talking about a little bit earlier, that that whole concept, you know, really understanding



the concept of what we're talking about or what we're doing. Even though they may have some of the specific isolated tasks in their repertoire, they can't pull it all together in order for them to successfully interact in that environment.

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We also know that for some children with autism, emotions can come up. And what we really look at that as is not necessarily emotions and the fact that they can't control emotions. Although that's what it says here in, in what the literature stated. But really it comes down to most likely a communication barrier or inability to communicate appropriately when you are frustrated and finding replacement behaviors that we would teach in lieu of that. So when we study it, we're not looking so much at emotional regulation at this point, but just trying to make sure that those replacement behaviors are in their repertoire as well as the initial behaviors we were trying to establish or in their repertoire. And, you know, really focusing on the reinforcement. Instead of truly, you know, self-regulation of emotions. And finally the literature also shares that peers just may not know how to interact with the population that we work with.

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And so giving them some of that education as I think most people have read. And some of the work that's been, you know, published is really important and can be very effective. But unless they have that, there may be, you know, fears, anxiety, perhaps even dislike, misunderstanding and they'll tend to make up their own, you know, stories about what's going on if we don't share the truth with them because they're going to talk about it anyway. So something to keep in mind is trying to, you know, get that whole team process in this school district or in whatever inclusive setting you're in. You know, the whole team to understand that this is a really important part of that treatment plan in order for us to achieve these longterm objectives like increased academic ability and interaction and independence and you know, certainly communication and overall social skills, which is just such a broad phrase that I don't like to refer to it necessarily all the time.

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Here are some of the deficits that we'll look at specifically today and we're not going to cover all of these as I'm looking at it, but several of them, we will theory of mind and we'll break that down into some specific tasks, executive functioning, we'll



define both of those and look at a couple of studies in particular that found success in working on some of these areas. And some of the things that they didn't find successful. Emotional regulation and understanding would be another deficit area. Ability to attend, ability to interact with your peers, following directions, taking turns and also being able to cooperate and understanding, you know, the expectation in cooperative behavior.

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So here's our massive list of what we're going to cover today is very dense. Let's just say there's just, there's so much and we're not even gonna come close to touching the surface, but what we've identified based on our practice here and what we've learned as well as what the literature kind of guides us to do, we want to make sure that we're focusing on the things that we would consider priority. And these include theory of mind skills, building executive function skills, building social cognition or what is termed as social thinking skills, learning other's perspective, learning that there is more than one perspective in general. Knowing how to engage in symbolic and imaginary play is super important as well. Knowing how to follow complex social sequences as well as learning what they call social emotional skills versus emotion recognition.

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So emotion recognition is very different than having you know, social emotional skills and recognizing others and interacting and making decisions from there. So we'll talk about that as well. And then there are a couple of studies that combined several social skills into one and that would include responding to peers, initiating interactions as well as understanding and responding to the facial expressions that they see in their setting. And then the last one being participating in cooperative activities, playing an organized game or sport game as well as socializing with peers during the lunch period. So hopefully we get through all of this today. All right. I already mentioned that even though social skills can be taught, we do know that there has not been much evidence about large scale improvements or even general generalization of those social skills without specific training. Some of the common evidence based strategies that I think most of us would be familiar with would be social story interventions, peer-mediated interventions.



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Also the use of a paraprofessional or an aid or a shadow that is providing that one on one training and prompting through those social situations, discrete trial training where you're isolating specific social skills that you'll work on and then hopefully put them together along the way. Role playing has been successfully used typically with a higher functioning autism and Asperger's as well as just our traditional prompt methods that we use. And you know, ABA and that would include specifically some that we'll talk about today is modeling and visual structures and prompts and supports that they've found to be pretty helpful.

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These are an entire list of evidence based practices that we'll cover today. So as we look at each of the skill areas, we'll be able to share what some of these different strategies are and what people found to be effective and how effective were they. So pivotal response training, we'll look at that. Something called social thinking approach or sometimes people call it social cognitive approach as well. Obviously we talk about the discrete, you know, skill-based approach that we mentioned on the previous page, but something also called thoughts as pictures strategy that was used in particular to teach theory of mind skills. Whereas brain as machine strategy was used to teach them executive function skills. Video modeling, one we're probably all familiar with, but there are a couple of of successful examples today, a strategy called systemizing. And this is trying to put things into routines and structure because it seems to be that a lot of individuals with autism benefit from that level of structure and support.

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So we'll talk about that. Another strategy called CMR or concept mastery routines. So if you haven't heard of that, we'll give you an example of what that looks like and how they implemented it in their setting. Lego therapy, that one is really an incredibly fun article to read. So, I know we referenced it in the back and I would highly recommend taking a look at it because what they found was it was much more successful longterm and had longer longterm effects than just even the one-on-one prompting that most of us are always advocating for. So that one was really interesting to learn about. But then also the social use of language program and that particular study is comparing the Lego therapy with that particular therapy model. And the social use of language is much more curriculum-based



following specific steps, whereas Lego therapy is not another evidence-based strategy that we've look at and use really regularly in our practice but also found in the literature to support what we do is where they do pre-teaching, prompting and then praise.

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And then within each of those sections that includes providing instruction, providing a model or demonstrating what we're looking for and then role playing in that moment. And then we go in and we try to have it applied in the real setting where then we're going to prompt it in the real setting and then praise when it's being done in the real setting until we can fade those prompts. Finally, we have something called social behavioral learning strategy and you'll see the acronym doesn't match that, but there's an acronym that we'll talk about and it's called the SODAS Story. And so it's different than social stories, but it is, it is still a story and it has several steps that you'll follow in order to implement but has been used successfully with the high functioning population or the Asperger population as well. So let's begin. I've got a lot to cover today.

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Before we get started, I do want to make note that there are some important definitions we want to make sure people are picking up on as we through the presentation. One would be what is a mental state or what are examples of mental States? So we'll talk about that theory of mind, a hard concept, but we'll talk about, you know, different tasks and behaviors that make up what we consider theory of mind and the ability to act in this manner. Joint attention. I do want to review that. That is super, super important. False beliefs. We'll talk about that, that's related more to the theory of mind area and we'll talk about first order false beliefs as well. And we'll get into that one a little bit more detailed than we do the second order. But we'll, we'll cover second order false beliefs just so everybody knows what that is and you'll see why because the first order really applies more to our elementary age and there's so much to cover in there that we have enough to work on now with our elementary students before we'd even consider going to the second order, false beliefs. There's also executive functioning and then social cognition so we'll make sure that you guys pull those out as we're talking today. I mentioned that I do want to start with a review of joint attention in our first presentation as the social skills series. We talk a lot about this one as being the



very first skill that we want to work on with an individual with autism and is absolutely crucial in terms of future success. The literature is very, very clear about that and is also going to impact their ability to communicate successfully as well as engage in social interaction later on. So we want to talk about it a little bit more and make sure everybody has this one really, you know, well under their belt and they know how to implement it.

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But joint attention would be considered a social communicative behavior. It typically develops in children, you know, even beginning as early as nine months old and is usually mastered around eighteen months and typically no later than twenty four months. It occurs when two people are sharing the same experience. So I talked a little bit about the triangle as a metaphor of how to visualize this, where we have person one, person two and then the shared experience here. And they're all connected. So you can't just have person one looking at the item of interest and then a person two looking at the item of interest. They have to share that interest together and recognize that they're that they're looking at the same thing and engaging in that manner. It does usually occur in the form of gestures and gazing. So when you're gazing at that object of interest or pointing to it and getting someone's attention to share this exciting experience or something that you're really motivated by such as, you know, watching TV and you find your absolute favorite TV show and now you know, you're going to go over and say, mom, I want you to come and look at this, or Oh, at what he did and, and things like that.

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So that would be an example of things that we would see traditionally. And really it sets up our kids to be successful in a teaching situation and say the classroom. Because now that we have this ability to share an experience, we now can better focus on the teacher focused on what they're talking about. And we're having this shared experience now in that setting. So it really does have its application in pretty much all social interaction. So it's, it's again, super important. We also know that children with autism don't typically develop these skills unless they are specifically trained and even still it may take a long time to get those established. And typically developing children, however it develops first, you know, with the parents and then it transfers over to their, you know, peers and their



siblings and the child is not only the initiator but also the responder.

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So we talked about, you know responding to bids for, you know, joint attention as well as initiating bids for joint attention in our previous presentation. And what we're looking for is to have the child with autism learning how to initiate that they want to share something of interest as well as respond to someone who is coming to them to share something of interest. It does include the development of coordinator behaviors such as you know, gaze and gesture and you know, following gaze or something called gaze direction. And so that would be an area that you'll want to pay attention to and we'll actually reference today as well. In terms of theory of mind skills. And it has a social function usually develops with early communication. It's one of the best and easiest ways to start teaching joint attention skills is going to be through your mand training or your request programs where now as you're sharing an experience, you know, the child's motivated, you're working with that motivation in the moment. You can require the gaze or the eye contact and that sort of social interaction that's going to take place to complete your triangle in a situation that you're most likely going to be successful. And same with that child because they are already motivated to interact with you and get access to that shared item or that exciting item that they want. Something also to know is it's typically mastered once you reach one and a half years old.

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For our children, we know that perhaps a lack of motivation may be part of that, a lack of understanding that that's a requirement in terms of social interaction and also looking at things where I'm having to respond to two different things, that that whole two step process, maybe one of the areas that makes it difficult for our kids to respond as well. So it's not just being able to get what you want and say one very discrete behavior is occurring, but you have, you know, a couple of behaviors occurring at the same time or in conjunction with each other, so to speak. So that may be something that you want to keep in mind in terms of why it may be hard for them. And we again look at two areas of focus, initiating and responding, and it is related to deficits in language, social development play as well as a theory of mind and even academics later on.



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So teaching the pivotal behavior of joint attention. I want to make note that I said the words pivotal behavior because that's one of the most successful ways that we've found in our practice and teaching joint attention skills is to employ pivotal response training. So if you're not familiar with that, there are some great case studies that are published that will walk you through the steps and they've got a really great manual that says step by step. This is how you'll apply the pivotal response training techniques in order to engage a child to request or learn early language, but also to share on joint attention skills. So that would be something to keep in mind if you're not familiar with that at this point. We know it increases communication, social development, play skills, their ability to understand others, and that all behaviors are really social in nature. And so that's what we're working toward overall. And if you don't have this very first foundational skill, we're not setting our kids up for success and it may take a long time, but it's definitely a worth working on considering how much it can affect later on.

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Now that we've covered joint attention, again, hopefully everybody's remembering what we talked about the first time and they're suddenly, you know, writing all those things in their treatment plans if they already haven't worked on it. But we can move to theory of mind. The definition, you'll see several definitions out there. But in general, it's the ability to understand that other people experience different mental States and recognize that they have different mental states, which would include things like their beliefs, their opinions, their emotions, their attitudes what their intentions are. And it's understanding that they have all these things and it doesn't necessarily match what I am, you know, feeling in that moment or myself. So it's again, overall looking at the, you know, subjective states of others. In a developmental timeline, we thought it would be important to share how this typically happens in traditional development.

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Preschool theory of mind does begin to appear. And we'll talk a little bit about how really right around the age of four is when you're going to see a lot of these things emerging and, or, you know, be mastered two years old. There's recognition that other people have thoughts and feelings that determine behaviors, but they don't necessarily connect it with the as a



cause of behavior. So how they're feeling, they're not making that connection of how another person is feeling is what's causing their behavior in that moment. They may understand or recognize or even label that there is a feeling that a person is having, but they're not making that next step or that leap to the next step. At three years old people, you know, they'll recognize that people have different beliefs and that they behave according to those beliefs.

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And then even as we get older, there's some really interesting information and literature out there right now that studying how it's, it's really based on our motivation on how we maintain our beliefs over time and that we actually set ourselves up to only find things that support our beliefs. And that's what makes up our moral structure and some things like that. So it's really interesting to see how it, how it progresses through our development as human beings after the age of three. Behavior is generally governed by the belief systems that you have, even if your beliefs are not correct. So that would be an area to know. And that's why we'll talk about some of the false beliefs as we go here.

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Okay. In order to process what the definition of theory of mind is and, and the fact that it's understanding other people's mental states and recognizing it and being able to make decisions from that, we need to make sure everybody understands what mental states are. So here's a list of examples of different mental states. I thought this was probably the best summary of mental states that I had seen in all of the literature. You know, some, they may talk, you know, or, or be worded a little bit differently than this, but this was a great summary of what you're going to find across multiple literature, you know, documents. And it starts with our beliefs and desires. So that would be an example of a mental state. And it's, you know, here's an example here, believing that it will rain and then having a desire for dark chocolate in particular knowledge and thoughts that would be another mental state.

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Knowing that one plus one equals two, but then thinking about another math problem and what that means. Mental images. So imagining being somewhere in particular in this example, it was imagining being in heaven. I prefer to imagine being on the beach and having some fun there because I could really use a



vacation and I'm sure other people can, you know, relate to that in terms of some of the things that we're thinking about in our own lives. Emotions and moods, that would be another mental state that we would be talking about. And this would be things like hoping, fearing, wanting, desiring you know, of being crabby and irritable as well as what I'm very good at. Being very long winded and perceptions and sensations. That would be another area or an example. So you have the perception of how things are going to happen. And then you also have sensations that you know, lead you to act in certain ways. So seeing, feeling, hearing being thirsty, tired, et cetera.

Michele LaMarch...: [00:38:53](#)

First-order and second-order, false beliefs. This would be another one of those definitions that we talked about making sure everyone has at least an overall understanding of before we jump into theory of mind because this is incorporated within theory of mind. Some of the best articles are all going to be around Baron Cohen's you know, work as well as Friz's work. But he describes you know, the first-order and second-order false beliefs as well as specific tasks that you can use to test whether or not these beliefs are in a person's repertoire. And in the research that they've done, they have tested these specific tasks with children with autism and that's led them to understand really what ages, you know, does a child with autism start to establish some of these skills or these belief systems and how that's different from typical development and how we might even want to approach teaching some of these areas. So first-order, false beliefs means overall that different people can have different thoughts about the same situation. So you're inferring another person's mental state. An example that he gave and I thought it was a really good one was little red riding hood thinks that her grandmother is in, you know, in the bed. So you're inferring that someone else is having a mental state at that moment. So their thinking, their beliefs, their desires.

Michele LaMarch...: [00:40:18](#)

This technically corresponds to a four year old mental age level in traditional development. And the earliest mental age and autism that they've seen. This skill establish is five and a half years old. But typically what they find is that it isn't starting until about nine years old. So I think that's important to know as well in terms of second-order false beliefs, this means that, it's where you're considering that mental statuses are embedded.



So in the example here, I think that's the best way to really conceptualize it. And that is John thinks that Mary thinks, so you've got, you know, two mental states, you know, happening at that time. It does correspond to a six year old mental age level. And again, not one that we're really going to cover in great detail or really in any detail other than this today because there is so much under the first-order false beliefs that we really want to make sure everyone walks away with.

Michele LaMarch...: [00:41:19](#)

So theory of mind, first-order skills, let's look at typical development. It's amazing to me how many ways this has been broken down in the study of, you know, psychology and the literature that's out there. But it gives us a really good understanding of, you know, the, the areas that perhaps may be preventing our kids from being successful and how to then analyze those particular skill sets and how we might teach those skillsets to our population. So I really like to know what is supposed to be a typical development because that's really where I'm heading my kiddos. I want them to be back into the regular environment as much as possible. And what we want to be able to do is recognize what we need to teach and try to implement that hopefully sooner versus later. So first-order, false belief. This is understanding that different people may think different things.

Michele LaMarch...: [00:42:20](#)

This emerges around four years old and I think that that kind of goes in line with, you know, the previous definitions. So it's just reiterating that but also not just understanding that people can think different things, but being able to shift your perspective in the moment to identify what another person may be thinking. So there were two components to that that were broken down and in the descriptions of, you know, what those theory of mind skills look like. And that would be again, being able to, number one, recognize that others have different beliefs or think different things. And then in the moment, being able to shift from what I'm thinking and what my beliefs are to identifying that somebody else's feeling something different and what might that be. And being able to predict from what I now am thinking they're thinking, but being able to predict their actions.

Michele LaMarch...: [00:43:13](#)

And even you know, understand why their actions may be happening. So it gets pretty complex. Another item that was talked about was seeing leads to knowing principal. This is



established at three years old. And this one I think is probably one of the more common ones that behavior analysts may be familiar with. And it's that idea that, you know, seeing is knowing, I'm going to if I see it, I know it's there. And so the different activities that are tested are presented would be say a child's sitting with you and they see that you're putting, you know, the ball in the box for example. And there is another child outside or mom or dad or whomever. And they, even in the examples they used false characters or you know, dolls and things like that to play this out. And so that doll for example, wasn't here when you saw, you know, that ball on the box.

Michele LaMarch...: [00:44:14](#)

So when they come in, where is the doll gonna think the ball is and you know, those sorts of things because prior they saw the ball on the table. And so seeing is believing, so to speak or leads to knowing. And that's a principle that I think is also easier for us as behavior analysts to break down into its components and think of different exercises that will expand on the original tests that are done out there and in the literature so that we can start working on those skills, which I believe may be why it's more commonly known. At least across the colleagues that I work with. Most people knew what that was when we were first talking about theory of mind and really trying to understand these concepts at a greater level. Recognizing mental state words. This is really exactly what it says.

Michele LaMarch...: [00:45:03](#)

So it's a child's ability to recognize the word, think, no dream, pretend, imagine and then taking that another step forward. And that is including those words in their spontaneous speech when they're describing things that have happened or a story that they've read and being able to say things like, you know, I was pretending this or so-and-so was dreaming or thinking this. And being able to use that now in a functional manner in their own communication. The recognition of those words really starts around four years and then, you know, including them in your speech or in your conversation skills comes a little bit after. But it does, it does start to emerge, you know, right after that. And so it's something that we probably don't see our kids using quite a bit. And that's what the literature is telling us as well is that children with autism just really don't use that language when they're describing.



Michele LaMarche...: [00:46:03](#)

They're much more literal and labeling is, is commonly what they do in terms of describing something that's happened or something that they are looking at right in that moment. The ability to demonstrate imaginative and pretend play, that would be another first order skill that would commonly be seen. We've talked about that several times already and our social skills presentations, but that idea that you can pretend and understand the difference between reality and pretend I guess it would be really what I'm looking for there. But all of that is something that we really end up having to teach more often than not. And is important for us to teach if we're going to try to get all of these, you know, skills built up in their repertoire so that hopefully we can see improvement in their social skill interactions and their ability to grow in that area.

Michele LaMarche...: [00:47:02](#)

Understand complex causes of emotions. So there were three types that were, you know, presented in his literature. This starts around four to six year, starts around four years and then goes all the way up until about six years. But the causes of emotion include these three things. So situation, a situation may cause us to have a specific emotion or express, demonstrate a specific emotion. Our desires may cause to have an emotion and or our beliefs may cause us to have an emotion. So those would be the three types of what they consider complex causes of emotion and being able to discriminate between the three as well as utilize them and understand them and apply them accurately and understanding other people and what is happening with them. So what is the situation that's causing their emotions, you know, to be what they are, what are their possible desires? I should be able to predict what, what they're thinking or what they want and those sorts of things.

Michele LaMarche...: [00:48:07](#)

The second page of first-order skills I remember, I said there were tons under the reason why we're not going into second-order, but this would be page two and this should cover most of what you know is out there. This includes following gaze direction. We mentioned a little bit about that as part of our joint attention skill building, but following the gaze direction to understand that someone may be thinking. So this is a little bit different than joint attention and responding to someone's bid for attention in the sense that you're looking at a person who may be, you know, just quiet sitting there looking like they're



processing or thinking and that's this, that's what they're talking about here. They should, you know, the child should be able to look at the direction of my gaze to identify that I'm in a state of thinking.

Michele LaMarch...: [00:48:55](#)

So the example that he gives in his literature that I thought was, you know, really easy to visualize was a person looking up kind of at the sky and just, you know, looking quiet contemplated, you know, all the different adjectives that we may use to describe it. And the child being able to see that and understand that that person is actually thinking right now is, is what they're talking about. But then it takes it to another level. And that is being able to understand not only that you are in the process of thinking but now identify what you may be thinking. So what might you want based on your gaze direction? If you're looking over at, you know, the chocolate chip cookies over there, for example, then I might be able to predict or identify that you probably want a chocolate chip cookie.

Michele LaMarch...: [00:49:46](#)

Same thing with just referring to something. So, you know, being able to see that, Oh, they're looking over there, so they must be referring to that activity that's going on. Another way does describe this or label this was mentalistic interpretation of the eyes. And again, it starts around four years old and is not only emerging but you know, they're applying it actively. So that's about the eyes. One of the things, I'm just going to step away from the list for a moment here. We've spent a lot of time in our practice and I don't know if this'll be helpful for you, but it has been helpful for our kiddos that we've been able to work with along these is not necessarily starting with gaze direction, but actually being able to label the different looks that the eyes produce. So that's been something that one of my partners long ago said, you know, one of her, her kids was having such a hard time in interpreting the cues of others and that would be one of those nonverbal behaviors that we're going to talk about as well.

Michele LaMarch...: [00:50:49](#)

But she created cards that were all about, you know, different ways that the eyes look and looking at the eyebrows and interpreting what that may mean. And so we were able to then get that particular student to start focusing on what people's eyes were doing, which then led us to the ability of, of carrying out or adding the gaze direction and now trying to predict from



there. So not just taking or taking a little bit further than that emotion recognition into actual social interaction and being able to understand what the person may be thinking and doing so that you can better respond in that moment, which is something that you should be able to do very quickly in traditional development. Going back to the list, understand the mental state or this particular mental state that they're talking about is intention.

Michele LaMarch...: [00:51:41](#)

We need to be able to describe and understand what intention means and that, you know, behaviors occur because you have an intention and that is a mental state that you're, you know, you're engaging in at that moment. Understanding and practicing deception. This is one where I have parents who will come to me and, and you know, really be alarmed and say, Oh my gosh, you know, I think he lied to me. Or he manipulated this particular situation. And we've often said that is a really good thing. I'm so glad because it tells me he's processing how this all works. And really that falls under our theory of mind skills and our first-order skills. So being able to understand and also engage in deception and initiate those types of activities. But taking it one step further, being able to understand when you're being deceived you know by someone else.

Michele LaMarch...: [00:52:31](#)

So the first two are really where you would begin and then work on later. Being able to understand others that may be engaging in that behavior toward you and or someone else. Understanding figurative language such as metaphors, sarcasm, jokes, irony, idioms, those sorts of things. This starts as early as three years old. There are a few curriculums out there that offer cartoon characterizations that represent idioms and being able to look at that cartoon and label it as a particular representation of what's going on. So it's got a cartoon character and then you have three choices, basically a multiple choice. And you know, when he says break a leg, does that actually mean he has a broken leg or you, does it mean this or does it mean that and then the student has to choose between those three? Those are some of the curriculums that we've, you know, used in the past and I'm not always found super successful.

Speaker 3: [00:53:36](#)

I think it's pretty abstract. I've had a few students who actually called that cartoon character idiom. So talk about literal thinking. You know, he would say, so what's idiom doing today?



And you know it was just one of those things. So trying to find a way to teach those those areas is not always easy, but it is actually considered one of the first order skills and it starts as early as three. And some of the examples that you'll see in a three year old are going to be more about like the teasing or pretending to do something. So, you know mom is going to I'm trying to think of one of the examples that I read about, but I think one of them was around dad was going to hide mom's purse and you know we'll tell her that we don't know where it is and sort of that idea of lying and, you know, understanding that it really is a joke and it's not meant as deception in any way.

Michele LaMarch...: [00:54:35](#)

So that whole context and complex level of thinking starts really as early as that. And so trying to identify specific examples of behavioral situations that perhaps you can practice and teach from is, you know, what we're looking for here in our facility and our classrooms. Another area that's considered a first order skill is understanding context. This one actually includes several things when he was talking about this in particular, we're looking at speaker, listener, mental state, so understanding that the speaker has mental states, the listener has mental states and the relationship between the two and how to use pragmatics in the moment or in that context appropriately. So changing the language that you may use if you're speaking to an audience of children versus a language you would use if you're speaking to an audience of adults would just be a very simple example. But that's really what they're looking at here in terms of a first order skill.

Michele LaMarch...: [00:55:39](#)

Being able to determine in that context what to say and what's appropriate to say, how to say it and change in that moment because you're, you're perceiving the mental state of, you know, your audience or that other person that you're communicating with. And then finally applying imagination in context other than play. And this one I found interesting because in our treatment plans we really weren't talking about this too much. We were, I would say very consistent in working on imaginative play skills. But then taking that another step further to the idea that I can imagine that, you know, I'll go up into space one day or that we're going to a monster is going to come out of the closet or something that would be an impossible task really to accomplish. And one of the ways that that's been done is through having kids draw, you know, well,



you know, try to think of, you know, imagine what it would be like if you were here or try to think of, you know, something that we can make in, you know, when you're trying to come up with new ideas and inventions and those sorts of things.

Michele LaMarch...: [00:56:52](#)

And then that would be a way to take that imagining to another level. And that's what they're looking for in this particular area of first order skills under theory of mind. Hopefully that gives you some good understanding and I want to say, gosh, how many were there? There's about twenty, not quite, maybe almost, maybe fifteen specific items and skill areas that you should be aware of that do occur naturally and without much teaching and typical development. And all of those areas have been found to be deficits in the autism population. And so they are of course then going to be areas that we should probably consider assessing for as well as trying to create treatment interventions around that. So when preparing to teach their mind skills, we do want to note that we should consider the following. Number one, there are precursor skills that a child needs to have in their repertoire.

Michele LaMarch...: [00:57:52](#)

And these include being able to listen to others. Understand perception at its most basic level and then also be able to imitate as well as you know, introduce yourself or make an acquaintance. The first emerging theory of mind skills begins when they're trying to understand the difference or when you're trying to teach the difference between fantasy reality, which, you know, we talked about a little bit earlier already and then other's intentions and emotions and how they're related. And then that will move you into understanding false beliefs. Then you would start with the first-order false beliefs. So in terms of a possible sequence that you may follow in your treatment plan, you may consider something like this.

Michele LaMarch...: [00:58:36](#)

Okay. Some examples of utilizing the theory of mind include telling white lies, taking things, you know, literally responding to indirect hints, recognizing surprise and embarrassment. And those just, and I think I've mentioned some other ones that we see in our, in our regular environments. But those are just give you an idea. And again, the literature is very clear in all of the tests that have been done with the kids with autism in particular, they have shown difficulty or even the inability to perform some of these tasks. And even if they have some tasks,



again, that doesn't mean that they're understanding the entire concept of theory of mind and able to apply the whole host of skills and their repertoire or even learn all of those skills and establish those in their repertoire very easily.

Michele LaMarch...: [00:59:30](#)

All right. And this particular study the team refers to various issues that can arise as a result of the ability to understand theory of mind. And this would be an inability to engage in social interaction. I think we would all agree based on what we know, inability to engage in conversation with others and unable to recognize and or understand irony and humor, which makes it all more difficult than in those social interactions and in those conversations because you may take things literally instead of understanding that they have other meaning. In this particular study, they examine a training that was used to increase theory of mind in elementary aged school children, which is why we isolated this one to share with you today. It did consist of fifty three training sessions and those training sessions increased gradually in difficulty. I want to say the training sessions were around an hour each and this particular example, but I'd have to look back to be absolutely certain. The sessions followed this particular step in terms of increasing difficulty.

Michele LaMarch...: [01:00:38](#)

First they had to identify the precursors to understanding theory of mind and make sure that those skills were established. So listening to others, you know, perception that we talked about being able to imitate as well as introduce yourself or make an acquaintance. Then they moved up to differences and understanding the differences between the fantasy reality, others' intentions and emotions and how they're related. And then they moved to what we call the elementary theory of mind skills or those first-order mental states and theory of mind skills including deceit, deception deceiving others, using imagination, using humor and you know, all of the reasoning that's taking place in, in those particular skillsets. And then it moved to second-order mental state reasoning where they were identifying others' mental states and you know, that embedded mental states are going to be there.

Michele LaMarch...: [01:01:33](#)

So like the example that we gave earlier. So the sessions occurred over fifty three particular timeframes. The results of this one were actually pretty good and in some areas, and in



terms of what they call their theory of mind training, it was more effective in producing a conceptual understanding than it was in producing applied understanding. So I think that, you know, just knowing what those two terms and the difference between them, we're not seeing much carry over application in the real environment. So even though they may be able to answer questions that's not necessarily showing us that they can apply and use it to their benefit. Participants also showed an increase in understanding complex and the ability to understand reason about beliefs and false beliefs. Training didn't produce. However, an increase in understanding and second order reasoning. So that next level or understanding emotions and humor as well as the precursors to understanding the whole concept of theory of mind.

Michele LaMarch...: [01:02:38](#)

So they also got some data from the parents' reports. In that particular situation, the participants did not demonstrate an increase in inappropriate social skills. Again, going back to the application and being able to generalize the concepts that they're learning and see how they're effective in their everyday interactions. So being able to identify it doesn't necessarily mean you'll use it, which I don't think surprises any of us as behavior analysts. And this particular study, the research examine the impact of social cognition training to teach theory of mind and social skills to elementary age kiddos as well. They were diagnosed with PDD-NOS and they use the Vineland as one of the areas to measure their baseline. And then also the theory of mind test. And then three measurement scales included these specific areas, precursors to the theory of mind. So it's a little bit different than what we just read in the precursors of the previous study.

Michele LaMarch...: [01:03:39](#)

And that's why you're going to see so many different examples that are across lots of different literature and you're not going to find just one list that everybody agrees on. But recognition of emotions, perception and imitation skills, those were the same as the previous study pretense and the distinction between physical and mental states. So physical and mental states is really well-described in the Baron Cohen literature that I've referenced on the previous pages so if you need more information, you can definitely take a look there. And then it also looked at first manifestations of theory in mind. So it's understanding the false beliefs as well as first-order beliefs and



the whole list of things that we talked about as well as the advanced concepts that it moves towards in terms of understanding the humor, the irony, the sarcasm, the figurative speech and second-order belief. The intervention that they used in terms of social cognition training and what that means includes training on theory of mind skills where they had six participants in a training session and they were available for twenty one weeks and they did one hour each. It consisted also of five monthly sessions with the parents covering the development of theory of mind and what traditional development would be as well as ways to increase social cognition in their children.

Speaker 1:

[01:05:01](#)

What they found was, in the theory of mine test scores, it increased in all but one of the sub tests, emotion recognition, what the author said and we thought it would be good for people to know is that the lack of progress may have actually been the result of high scores in this area on the pretest. So they scored higher. And this was not the only study that said that, that the children with autism actually scored higher than what was anticipated or what was hypothesized by the research group. And another study that found that as well was a comparison between a group of children with autism, a group of children with ADHD and a group of children with oppositional defiant disorder. And what they thought in terms of everybody's abilities and hypothesized in terms of the children with autism was very far off and the pretest scores were much higher than what they anticipated and yet they were much lower than what they anticipated in the ADHD group.

Michele LaMarch...:

[01:05:59](#)

So, I'm seeing this across multiple studies actually. And then when they looked at the statistical analysis of the pre and the post treatment, they did find that parents reported an increase in functioning level for a variety of the social skills. So in terms of social validity, we could say that it was somewhat effective in that area. This particular study by Fisher and Happe, I hope I'm saying that right, they found that an intervention to train theory of mind was actually more effective than an intervention to train executive function. And the reason why I talk about the actual results first we'll talk a little bit about their intervention as well, is that this was a study where they were comparing teaching, you know, one set of skills, which is theory of mind.



And then another set of skills and the executive functions, both of which are very complex and have lots of components.

Michele LaMarch...: [01:06:52](#)

And they identified two different ways to teach. I actually brought that study with me because it's, it is pretty dense in terms of what they did and in terms of their design. And what they found was again the theory of mind was more effective than the executive function training. And we'll talk a little bit about what they looked like. The theory of mind training increased the ability of the children with autism spectrum disorders to pass specific theory of mind tasks. So those tasks would be from that first-order list of skills that we talked about, those two pages. There are specific tasks again that you can use or implement to test whether or not a person has those skills in their repertoire and that's what they're referring to. Training executive function did not however increase their executive function performance in the children that they you know, worked with here.

Michele LaMarch...: [01:07:43](#)

However, it did increase the ability of the children to engage in theory of mind. So there is some discussion about which one comes first, the chicken or the egg. And I have not read anything that really defines for certainty what we should be looking at doing teach theory of mind skills first or do we teach executive function skills first so that it can help learn and help a child learn the theory of mind skills? Or is it vice versa? And there's different, there's different opinions about that. And I that it is being looked at a little bit in the literature, but I've not found anything yet that says, you know, one way or the other. And it seems to me that based on what I'm reading, they're both, both of those areas and the specific tasks that a person needs to have in their repertoire or behaviors they need to have in their repertoire that they can perform on those tasks are so important that we're having to teach them simultaneously or alongside each other. So that's how we've approached it from a treatment standpoint and at our clinic. But it is definitely an interesting, an interesting question. And it is being raised out there in the community. Now leading to executive functioning that would be considered the ability to perform higher level cognition. We talk about, you know, executive functions. We have it controls all of our, you know, thought processes or responses or reactions and it's kind of the control center of our body and our brain. And, and you'll hear things like that in terms



of description. Examples of executive functioning includes something called set shifting, which we'll talk about here in a minute, planning ahead, following verbal instructions as well as coordinating you know, sequences and controlling sequences including inhibition and multitasking skills as well.

Michele LaMarch...: [01:09:32](#)

The ability to engage in executive function skills actually impacts how appropriate your social skills are going to be. So it is definitely connected and interrelated in that sense. So we want to make sure that we're identifying those specific areas and one of the things that you can first do in order to start establishing some of those planning skills and those abilities to follow directions and schedules and those sorts of things is to teach choice making. And that would be one of the very first things that when we're working on communication skills that we tend to implement in our treatment plan already. So we're working on mand training or that requesting for desires and wants, but we're also in most situations offering a choice board of some sort and having the child, you know, interact with that choice board and make those choices in the moment as well as be able to you know, change their choices, you know, and move from one to another.

Michele LaMarch...: [01:10:26](#)

So that would be one thing to consider and kind of bringing back those toddler preschool skills that you should, you know, keep in mind. But we do know that children with autism typically lack these particular skill areas. And so starting slow and starting with something that is extremely functional is definitely a good place to go. In terms of this particular study, they examined the difference between these two actual training methods. One is called thoughts as pictures strategy, which I mentioned earlier when we were doing our overview and the focus here is where they're looking at beliefs and thoughts as photos in your head. And so they're trying to portray it to the individual that their photos and those photos can change. And I'll talk a little bit about that, but pictures, you know, are what's there and that's what guides you in terms of making decision.

Michele LaMarch...: [01:11:18](#)

Now in terms of the executive function strategy that they used, it's called the brain as a machine strategy. And in this particular area they're focusing on how the brain has, you know, functions like a machine. It has different tools that help you make decision in terms of you know, how you're going to respond in



different activities or situations. So I do want to talk a little bit about this and look again how they did find success in the theory of mind area, but not necessarily in the executive function area. And the theory of mind training, the design was that they would actually teach five rules and those rules would be learned at each stage of the training and they broke that down into five stages. So the very first stage, which would be the first rule is that it's an introduction of what they called the camera analogy.

Michele LaMarch...: [01:12:07](#)

When a person sees something, they have a thought in their head and we can say it's like a picture. So they're really coaching and guiding the individual to start, you know, perceiving this and apply it in their own actions. Now the second step or stage two would be thought pictures can stay in a person's head even if they go away. So even though the pictures may be removed, those pictures can still stay in your memory and now you can use those to your advantage. So then you can use the thought picture to look for things. You know, in that sense, stage three is that different people can have different thought pictures in their heads. So again, trying to make it, I think, you know, more concrete in terms of teaching that theory of mind skill that people, you know, think different things and that there is different perception.

Michele LaMarch...: [01:12:50](#)

And that was one of the very first skills that we listed under the first-order states and that seems to me to be another way to, you know, to tackle that. So that's another reason why I wanted to talk about it because I think these are incredibly hard areas to implement in our treatment plan and finding ways to do this in a manner that may be effective. And make it more concrete is what everybody recommends we do, but there's not too much out there that shows us how to do that successfully. Stage four is sometimes thought pictures can be out of date. And then stage five is a thought is like a thought picture only we can see it. So again, trying to make it a situation where it's a little bit more concrete. And then what they did do is that they recorded all of the responses.

Michele LaMarch...: [01:13:35](#)

You didn't necessarily have to master each stage before you moved on to the next one. But instead they recorded which ones they were picking up on and which ones they were using. And in the executive function training, what they did here was



very similar in the sense that they used sort of, you know, the analogy that there are five rules that you want to learn and they are as follows. And so this one is a little bit different. Again, going back to the analogy that the brain has tools and those tools can be used to accomplish different things or respond differently depending upon the activity or situation. In stage one it says people can do a lot of things and sometimes they need to change how they do things and they do this by changing their brain tools. So you're switching from one tool to another.

Michele LaMarch...: [01:14:24](#)

And again I think, you know, perhaps a concrete, you know, way to visualize this. Stage two sometimes if we have been doing something for a long time, it's hard to change our brain tool. Stage three some brain tools are easier to use than others. Stop, change, go sequence for changing brain tools. So you know they're giving them, you know, sort of that that verbal cue and ways for them to memorize specific sequences to follow. And you can also apply some visual strategies around these as well based on some of the other literature that's out there. Stage four is sometimes we have to change our brain tools before we finish doing something. So being able to be flexible and make changes in the moment and respond to that situation in the moment. And that is one of the things that we'll talk about is one of those skill sets that most of our kids don't yet have in their repertoire.

Michele LaMarch...: [01:15:12](#)

And that is what traditional development includes. Meaning I'm, you know, interacting with somebody, I analyze what's going on. I have to analyze all of the social information that is around in order to make a decision really within a split second or two. And so, you know, being able to respond that quickly and also comprehend everything that's out there in order to determine how I'm going to react or respond is something that we have to kind of build in, in our kids' repertoires. Now, stage five, sometimes we have to decide for ourselves what brain tools to use. So in this particular example, I thought it was a really good one and you may want to reference this particular you know, literature in order to identify if it's something that you can apply in your treatment plan. Again, these are just incredibly difficult concepts at least we've found in our practice and have been more successful in accomplishing some of these skill sets or incorporating and building some of these skill sets in our



students' repertoires if they are a higher functioning autism and or an Asperger's diagnosis.

Michele LaMarch...: [01:16:17](#)

So it is something to consider though for that particular population. So theory of mind, very complex, a lot of things to cover in such a short period so hopefully that gives you a good overview of, you know, some of the things to consider when you're first starting out. Moving on though, let's talk a little bit about social cognition and social thinking and we have in terms of social cognition, the ability to acquire social knowledge and then process that external social knowledge. So similar to the example I was just talking about where I'm going to act on all of the information that's around me after I process what you know I'm seeing and then make a good decision from that. It's the ability to understand and acknowledge social forces as well as it allows for the ability for us to communicate verbally and non-verbally with others with the use of that social knowledge that's around us.

Michele LaMarch...: [01:17:12](#)

Social knowledge in general is understanding that others have their own beliefs and feelings and also allows us the ability to understand someone else's perspective. So that's what you're trying to build gradually. One of the studies actually describes this as it's a complicated process whereby individuals acquire, understand and then use that social knowledge to quickly respond to both the verbal and the nonverbal stimuli or cues that they're seeing in that social environment or that social information that they're collecting. Social thinking is related to social cognition and teaches us why we socialize and it does include, you know, some of you have to be able to do that when you're learning executive functioning as well. Here's a particular training difference though. When you look at the social thinking approach than say traditional approaches, like a discrete skill-based approach or discrete trial approach, the training does not provide reinforcing consequences following the desired behavior.

Michele LaMarch...: [01:18:14](#)

And it doesn't focus on any decreasing undesirable behaviors that a child may have. So that's something to know when you're considering this approach, what does it look like? Well, this is more, again, I would say appropriate for the higher functioning population, but it's the identification of others' thoughts, promoting the understanding that people have thoughts that are different from their own perspective and then training to



regulate other's thoughts through your own behavior. Social thinking training includes the following components, making difficult concepts more clear and concrete, generalizing social skills to novel settings, increasing awareness of self and peers as well as using visuals to support communication. So knowing that social thinking training includes that idea of making concepts more clear and concrete. That was another reason why I really favored looking at the previous article we talked about is I think that's really what they're trying to accomplish for our individuals that we work with.

Michele LaMarch...: [01:19:16](#)

The goal of social thinking overall is to teach the underlying cognitive processes that may result in the outward expression of appropriate social behaviors. So that's a whole lot of words there. But I think, you know, if you just take some time to, you know, process that it makes complete sense. Some social thinking behaviors and tasks. These were the areas that they looked at in terms of this particular study. And again, they use this approach with the higher functioning and Asperger population. The behaviors that were measured were expected verbal behavior as well as unexpected verbal behavior. So that would be our problem behaviors and then expected nonverbal behavior as well as unexpected nonverbal behavior, listening and thinking with your eyes as well as initiation. So those were the things that they measured upfront. And then the tasks that were included in this were interpreting verbal actions and intentions, interpreting nonverbal actions and intentions, as well as learning to understand social reciprocity and adjusting your verbal behavior according to the social cues as well as adjusting your nonverbal behavior according to the social cues that now you've just previously interpreted.

Michele LaMarch...: [01:20:21](#)

So it kind of, you know, just builds on, on each step builds on each other. And when they studied the impact of this, the lessons were provided to obviously increase their social thinking and they included pretty much these three steps here at the bottom where the group members are gathering. There's, you know, talking with each other for a brief period of time. And then they have a lesson and there that's when they received the social skills training on the specific social skills strategies that were just mentioned prior. And then they would practice. And that was in unstructured time where feedback was then as provided to the participants or the students that were learning



these skills. And then the group members had an opportunity to talk with each other thereafter. Again, kind of breaking down some of those variables that they were looking at. Expected verbal behaviors included, things like verbal responses, initiations, social exchanges and you know, reciprocity. As well as non-verbal behaviors, listening with your eyes, attending to the speaker, nodding some things that I do right now. And then the problem behaviors that, you know, we were I mentioned a little bit earlier, the unexpected verbal and unexpected nonverbal behaviors including things like comments that are rude, off topic, offensive, inappropriate or even distracting

Michele LaMarch...: [01:21:43](#)

Some points to consider even though that they found this increased expected behaviors and decreased some of the unexpected behaviors. Even without specifically targeting those unexpected behaviors, the intervention is probably not suitable for all individuals with autism spectrum disorders, but probably just a subset of them. And the skill based approaches may be required for individuals with greater deficits. Meaning going back to that discrete trial training approach is probably going to be a better way to start targeting some of those social skills if you still have just that emerging language or are, you know, maybe have little language that you can apply and some of the foundational skills that we talked about before. Here's something called training perspective. And so when we're talking about perspective as a skill, this is taking you know, it's associated with the theory mind that we were talking about earlier, but it allows individuals to identify with others thoughts and feelings and understand their behaviors based on those thoughts and feelings. So perspective taking develops for typically developing children at around four years of age and as in theory of mind, it's often slow to develop or severely limited and the population that we serve,

Michele LaMarch...: [01:23:00](#)

Previous research does show the effectiveness of using video modeling to teach these particular to children with autism. So we wanted to, because video modeling is a pretty easily accessible intervention or strategy. We wanted to make sure we brought about this particular study in case you wanted to replicate it in your own practice. The intervention was using a video model that was showed that was actually showing adults correctly responding to the tasks in order to train the correct behaviors that we were looking for in terms of the first-order



perspective taking tasks. After the model was shown to the child, the instructor and the child then reviewed those responses. And then the child was then tested on the task right after. The results here is that children did learn some perspective taking. And because the intervention utilized multiple exemplars, generalization was actually found to occur for each and every child in this study.

Michele LaMarch...: [01:23:55](#)

So video modeling was a way to produce fast acquisition, which I think really mimics some of the other things that we've learned about video modelings, you know, benefits as an intervention. Symbolic play, this was mentioned in our toddler and preschool skills, but it also occurs in your elementary age group as well. And this is where you're using objects during play and you give them multiple meanings and creative play is where they're understanding that an object can have more than one purpose. And example, I think we gave in our previous our previous presentation was, you know, using a cup as a microphone or something similar to that. And you know, although it's similar in shape and those sorts of things, if you're using it for a different purpose examples, Oh, here you go. Flashlight is a microphone, a banana as a telephone and a box as a house.

Michele LaMarch...: [01:24:46](#)

That typically developing children actually develop symbolic play starting around nineteen months of age. And children with autism again tend to lack the ability to engage in symbolic play. One way to teach it is through pivotal response training, which I mentioned earlier as a really great tool in terms of you know, getting a really good clear list of steps to follow as you're trying to establish emerging language and joint attention skills. But it can also be used here. Research actually examine the use of PRT in terms of teaching symbolic play to the kids with autism in particular. And I think that if you're familiar with PRT or if you're not, I know that there's again, some really great tools out there, but it's the idea that you're targeting very specific behaviors which are identified as pivotal behaviors. And then, you know, working with that and focusing just on those because those pivotal behaviors will lead to an open up more doors of learning naturally without having to teach every single step as a discrete step along the way.



Michele LaMarche...: [01:25:58](#)

The procedure that they used was a free play assessment and then they provided training using pivotal training where the kids were required to engage in symbolic play in order to get the toys and so the following criteria was necessary. Toys were actually the preferred items that the child would use often and they were also rotated. The experimenter then played with the toys that were used modeling the desired play. Approximations to that desired behavior was then reinforced. So again we're using our traditional you know, prompts strategies in order to achieve the outcome that we're looking for. Both functional and symbolic play was taught and social interaction skills were also targeted. Play behaviors increased in complexity during the sessions overall. They also included some things along the language training and so PRT is really well known for that and the language training began after the symbolic play training. Sessions were similar though to the symbolic play training and the area of focus again was language and not necessarily play behaviors. The results of this and if you do learn how to implement some pivotal response training techniques and follow their sequence, it really is a very natural and I would say easy way to apply intervention and probably more natural for parents to follow as well. But the results from this in particular is that following the symbolic play, training, symbolic play behavior, complex play and interaction skills improved and that teaching symbolic play can actually increase symbolic play behavior to the levels matched of their typical peers, which is exactly what we're looking for. And that will make it all the more likely we can be successful in our inclusion. Language training unfortunately did not produce an increase in the symbolic play. Initiation and responding to pure play also did not increase.

Michele LaMarche...: [01:27:53](#)

All right, so let's talk about complex social sequences. What are considered these complex social sequences? While it's interactions that result in a variety of social behaviors? So children with autism as we know, lack the ability to engage in many social behaviors such as initiating and responding to interaction from others. In this particular study, they were looking at the effect of, again, video modeling and if that had an effect on developing a sequence of social behavior as it relates to the initiation, reciprocal play and then generalization and maintenance of those learned behaviors later on. The video



showed a model and an experiment engaging in different interaction conditions and some of those activities included playing with a ball, moving a table, sitting on rags and those sorts of things. So the interactions then gradually increase the amount of activities the child was required to perform in those sequences.

Michele LaMarch...: [01:28:50](#)

The results were that it was actually effective and an increase in the amount of social behaviors in the children with autism and behavior changed quickly for several of the children that were in the study. So we're always for quick, you know, ways to gain acquisition because our time is so limited and there seems to be so much to teach. Moving on to social emotional skills, what are these exactly? Well, they're skills that are necessary to engage in appropriate social interaction as we might guess. They can be verbal, nonverbal, cognitive, physiological and it can include a lot of different things. And in terms of specific categories that have been identified in the literature, if you look here, it indicates that there are, that includes interpersonal behaviors, peer related social skills, teacher pleasing, social skills, self-related behaviors and communication. The authors of this study actually suggest comparing social emotional skills to literacy and reading because they both involve decoding, scanning, punctuating and et cetera, moving on from there,

Michele LaMarch...: [01:29:56](#)

They're also taught commonly in the elementary school curriculums and those curriculums focus on communicating with others, regulating your emotions, increasing your awareness of others as well as yourself as well as decision making abilities and increasing, you know, that area in your repertoire and problem solving. And those are things that we start with almost right away and some of our treatment programs and learning how to manipulate different things in order to achieve the goal such as completing a puzzle is something as simple as that. So for children with autism though there needs to be a greater focus placed on each and every category and not just combining those curriculum moving through them as quickly as you might see in regular education. This shows a child trying to we're trying to teach through some of the peers, the ability to identify those social emotional cues and how those feelings how she feels or what her emotions are. So let's just take a quick look.



- Video: [01:31:24](#) How do you feel? Sad. She feels sad. Can I help? Can I help? You can say I want a hug.
- Michele LaMarch...: [01:31:43](#) Okay. So that was fun one when we were trying to work with the kids, we had them making movies and we did several of those with them. And number one, identifying what somebody was feeling and then how you might respond to it. So again, taking in those social cues and then making a decision in terms of what your social response should or could be. I did mention earlier, there is a technique called systemizing and so I do want to cover that. Systemizing is a theory that states children with autism tend to show interest as I'd mentioned earlier and things that are predictable, systematic rule-based, you know, in a sequence and in order. In looking at their difficulty and engaging social language or interaction and because of how different it is for each individual as well as each social interaction is going to be so different and it can't be predicted.
- Michele LaMarch...: [01:32:36](#) What they found was systemizing may be utilized within the interventions to teach social interactions. And specifically what they were looking at here was emotion recognition. So when we look at, you know, recognizing emotions, the theory is that lacking in the ability to recognize emotion may actually be the result of individuals with autism not engaging in eye contact with others. Now using the systemizing concept, what they are trying to identify is taking the interest of the individuals as you'll see here with autism and put those in predictable systems that they can follow or visuals and then study their emotion recognition and their contextual understanding. And what they did was they did this following a training of the transporters, which is actually an animated series or cartoon. So they use something that was motivating to the kiddo already and then went with that. So the intervention looked like this.
- Michele LaMarch...: [01:33:32](#) The DVD was viewed by the children three times a day, did that for four weeks. It utilized the concept of systemizing and incorporated vehicle characters whose motion was rule-based and predictable. The characters then had faces of people showing a variety of motions. Then the children viewed the DVD along with the support of his or her parents. And what they found was using the animated vehicles to teach emotion actually improved the children's ability to comprehend emotion as well as their ability to recognize emotion. And because they



were able to actually correctly matched their responses for each combination tested, we also in this study, they were able to show that generalization occurred. So again, got to work with that motivation, right? We keep coming back to that. Social skills training, this is really very broad and so what we're looking at here is a particular study that's focusing on three areas which we know have been identified as key initial social skills that elementary school children have in their repertoire or need to have in their repertoire.

Speaker 3: [01:34:38](#)

Number one, appropriately responding to peers. Number two, initiating those interactions. And then number three, understanding and responding to facial expressions. So again, all of it seems very well connected and intertwined as we go through theory of mind, social emotional recognition as well as executive functions and planning, responding. Visual supports were actually used here. So when I mentioned something called concept mastery routine or CMR, it's a visual diagram of social skills and it includes these four areas here, which is the concept or the skill that you're working on and definition of it. And it also includes what the characteristics are within that skill and examples of it as well as non-examples of it in terms of that concept. But this would require probably a higher functioning child with autism in order to utilize this. Because what you're finding here is they actually have the children participating in creating those diagrams.

Michele LaMarch...: [01:35:37](#)

So they're actually drawing the diagrams and including all of those components and then they're talking about it and they're requiring active engagement of each of those children. So once the diagram is actually created, the participants then are required to review it and practice it until the concept met some sort of criterion. And then generalization sessions were completed as well. The results were that I did produce an increase in social skills examined for all of the kids that participated and that generalized skills did occur in other environments. So again, pretty successful and much of what we've seen so far also successful but probably appropriate for more of your higher cognitive level individuals. It was found in addition that the participants increase their social status with their peers, which was one of the things that was different from some of the other studies that are out there where they were assessing the peers opinion about the individual and what the



peers said here was that they favored them more now following up, you know, this particular intervention. So in terms of social validity, it was received positively both by the teachers and then obviously it had an effect on the peers as well. And reaches a good level of social validity is in terms of what we're always looking for.

Michele LaMarch...: [01:37:04](#)

All right, well we know this already but what's interesting is actually what's on the bottom. We know that the kids tend not to initiate and engage and interact. We've already talked about that multiple, multiple times and that they're not naturally going to learn these skills in order to interact with others that we actually have to teach. And this is one of the studies that I was really again excited about as I mentioned earlier where they compared what's called Lego therapy to the use of the social use of language program in order to determine which one was more effective at teaching social skills. Again, however, they did use high functioning children with autism and or Asperger's syndrome. And in this case in particular, I think I mentioned earlier they were looking at IQ is above seventy in order to be a participant in the study.

Michele LaMarch...: [01:37:50](#)

Now the therapy though in terms of procedure had really great effects in to other things that we would traditionally do. Number one in the Lego therapy procedure, the children worked in groups of three and then each participant had basically a responsibility or a job. One was the engineer, one was the supplier and one was the builder. And then they switch those rules throughout the therapy, which reminds me a lot of some of the peer-mediated strategies that you know are out there as well. The rules were presented to the participants that they were required to follow. And then there were several skill levels that they could achieve. They could become helpers, they could become builders or they could become creators. And then in terms of the social use of language program, the procedures were a little bit different. This one, again, I, as I mentioned earlier, was more curriculum-based so it includes stories, activities and games.

Michele LaMarch...: [01:38:40](#)

The comprehension then was assessed after each story was read and then the participants were required to critique the social skills of the adults during the role play and then practice the social skills themselves. Each session focused on a specific



social skill and then the kids were required to master one skill before moving onto a different one. They did use some traditional measures that I think, you know, we find as somewhat common in the autism diagnostic groups. And what they found was Lego therapy actually showed a greater decrease in social difficulty and it also showed an increase in the duration of time that they were able to engage in social interactions with their peers. Whereas the other group showed an increase in communication and socialization skills. So what they really ultimately learned is that both interventions resulted in a decrease in maladaptive behavior.

Michele LaMarch...: [01:39:33](#)

So they both had something really great to pull from. But what I also like about the Lego therapy, and I don't have that sitting with me, so I'm going to try remember here, but in terms of applying it, it was only a few times a week. And it was for very short periods and they were even comparing that to, you know, kids who were on waiting lists to get any sort of intervention. Just having them start that with their parents and peers in the classroom perhaps and how they were already seeing success with just very short spurts of intervention using Lego therapy. Whereas they were seeing more success in that versus having a one-on-one age shadowing and prompting all of these skills from behind. So that was something that I also made note of because trying to find something that you can give to those who are waiting when there is a long wait list as well as just giving, you know, items that are easily implemented in a classroom setting around Legos.

Michele LaMarch...: [01:40:30](#)

Something that's typical that kids are used to playing with. And you know, I think that that's really helpful. In addition from a clinician standpoint. Moving on though to teaching, responding and initiating in particular, what we want to just point out again, is that these particular skill sets are absolutely important and they're crucial in somebody's ability to actually engage in a fully in a social interaction. And so these authors were examining specific interventions that aimed at targeting the responses and initiations of the students with autism. Three of teaching procedures, very much like what I think most people are used to using. I also find this very similar to skill streaming in terms of teaching social skills, but three teaching procedures were implemented, pre-teaching, prompting and then praise. And each one I mentioned that instructions, demonstration and role



play were utilized and that the participants were provided with lessons prior to as well as a short review session.

Michele LaMarch...: [01:41:29](#)

And it was implemented prior to actually the scheduled play time that they had. So again, that's we're kind of priming them in order to then go into the social situation. Social initiation and response occurred within a schedule play period and those were examined and then the intervention actually resulted in an increase of social skills as well as you know, specifically the responses and initiation for each of the kids. Were coming to a close here very shortly, this one is talking about social behavior learning strategy. Remember when I mentioned the SODA story, that's what we're talking about here. So what we're looking at is the impact of this strategy which is called the SODA story in terms of replacement behaviors for four of the kids that are diagnosed with Asperger's. SODA stands for, Stop, Observe, Deliberate, and then Act.

Michele LaMarch...: [01:42:23](#)

So again, trying to take in the social cues if very similar to some of the things we've talked about in terms of needing those skillsets, watch what's going on, taking those social skills, think about what you should do and try to identify others' perspective and those sorts of things and then make a decision or act on that social information that you have. So let's go through and talk about how that was actually implemented. Each child read a SODA story immediately prior to that specific target time and the social studies time was one of them, recess and lunch was another one. Within the story, a specific social problem was addressed. So in this situation, you could then use this across multiple social problems if this is an effective technique. Question and answer statements were included within the story and then scripts were developed in order to teach the students the answers associated with each question.

Michele LaMarch...: [01:43:17](#)

Questions were also posed then to help the child think of other ways that they could possibly respond in those particular situations. So you've got your problem-solving then coming in as well. The students were also asked about the thoughts and feelings of others throughout the story. We're looking at your perspective taking and emotion recognition as well as you know, making decisions about how to respond in that affect sharing that we talked about even way back in the toddler preschool and this intervention targeted three specific areas,



participating in cooperative activities, playing an organized sport game as well as socializing with peers during lunch. And what they found was an increase in replacement behaviors following this intervention. Students maintain those replacement behaviors after intervention was discontinued, which is something that we're always looking for is you know, a proof that it will endure and last and even when we remove that intervention so that it actually has real applicability. One year following intervention, each student was able to recall the components of that SODA intervention as well as memory of procedural knowledge. So what you found was a lot of generalization or continued use of the skills that they had learned.

Michele LaMarch...: [01:44:32](#)

Okay. Let's see. I think this is going to show us an example of cooperative activity here.

Video: [01:44:49](#)

Oh, we got a three? Yeah.

Michele LaMarch...: [01:45:18](#)

Okay. Just for the sake of time, I think this is a long video and I think everyone can kind of conceptualize then what cooperative activities may include. It doesn't have to even be a board game or something that complex. It can be something as simple as just working toward finishing a puzzle together. If you're talking about early learners and perhaps even working toward completing say an art project things that you would see in really the regular school classroom and probably be able to manipulate and be able to then use to your advantage if you're going to apply some of these strategies.

Michele LaMarch...: [01:45:54](#)

One thing I do want to mention because we are coming to a close here though is that there is relational frame theory and this one in particular is incredibly complex and I didn't want to not mention it but also it's completely outside of the scope of kind of what we were talking about today because it requires a lot of reading, studying and practice and discussion. But I thought it was important for people to know because it is a particular strategy that is showing some effect and positive effect and you may start seeing come up more and more in terms of, you know, conversation. Relational frame theory is an understanding of complex human behavior where it describes the development of language and cognition and this theory



explains the development of language and cognitive functions based on the experiences one has in his or her own life.

Michele LaMarche...: [01:46:46](#)

It attempts to integrate the following social phenomenon, naming, understanding analogy, metaphor and rule following some types of relational frames include coordination, opposition, distinction, comparison, hierarchical frame as well as didactic frame and others such as spatial and temporal relations. Again, really intense and dense material. But it is important for you to be aware that it is out there and you may want to take a look at it if you're looking for additional ways to increase theory of mind skills and social skills overall because it's, showing to be possibly really effective and it's all based on Skinner's original work so that's that's something to keep in mind. Again, theory of mind is the ability to understand someone else's private events and that's related to relational frame theory. How? Because both require a person to think in abstract ways about his or her own experiences and how they relate to someone else's experiences meaning the other perspective and that we have different views and some of the things that we talked about earlier, both also involve how one's environment impacts the development of private events such as thoughts, emotions and internal language and both can be a target of intervention to change and enhance cognitive thinking skills which we know is embedded and the ability to understand theory of mind concepts as well as improve your executive function skills overall.

Michele LaMarche...: [01:48:22](#)

Another item I wanted to point out that I found really interesting and really very relative to the skill sets that we're talking about today is a specific social intervention that focuses on each component here and it's titled JASPER Joint Attention, Symbolic Play Emotion and Recognition and each component again plays a role in the development of social interaction and it really goes along and is parallel to the things we've discussed so far tonight, so you may find some of this information. There's actually some good video clips about this particular intervention on the autism speaks website and a very good description, very brief but good summary of what this program is intending to achieve. I close with I think three, four, maybe even five slides of different social skills. Remember in the beginning when I said there were just so many, it's impossible to cover them all in one presentation, but you'll have them for reference.



Michele LaMarche...: [01:49:17](#)

You can take a look at them, identify based on what we talked about today, which ones may be more priority, which ones you may want to assess for with your particular students with autism. I'm not going to read all of them to you, but I can tell you that we've got several on this, you know, on this list here and I think again, there's maybe five pages but there is definitely some carryover or it crosses over the things that we've talked about and then you'll see some additional ones that we haven't covered today that you may want to look into further.

Michele LaMarche...: [01:49:48](#)

And here's page two, page three. These are all skills that children, elementary-aged children, and even some of these go into the toddler preschool area should have in their repertoire to be successful in social interaction. Page four. And then finally, I think our last one is page five. Yes. And of course there's more. So I thank you for attending. I hope that you've learned a lot and you've been able to identify some specific strategies that are evidence based that you may be able to implement in your own clinic or in your classroom with your students. If you have any questions, please feel free to send those our way. I hope to see you in part three where we're going to talk about middle school social skills, and then even in part four, where we're going to cover high school social skills. So thank you again for attending, and hopefully you have something that now you can take back and use.