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Michele LaMarch...: 00:00:00 Hello and welcome my name is Michele LaMarche. I'm a Board Certified Behavior Analyst and I welcome you to the first part in our social skills series. Although I have to say we have talked about social skills for the adult population, which I would consider part five of this series even though we talk about one through four. Today we're going to focus on toddler through preschool skills. The reason that we're really taking an interest in this is because we've been trying to identify ugood assessment tools that we can use in our own practice as well as better ways to actually teach and establish the social skills in our young population right from the beginning. We tend to, I think in programming if we haven't had much experience in working on some of the basic social skills like joint attention building, we tend to focus more on traditional type skills as just imitation as well as you know, following directions and some of those things that certainly are needed.

Michele LaMarch...: 00:02:07 But then we're really missing the boat in terms of how functional application of that imitation will help a student that we may work with an autism spectrum disorder, interact better with their peers and learn those skills much more quickly instead of waiting until we have those opportunities in the school environment. So these are things that we want to look at, right when we have a diagnosis, sometimes we're lucky enough and we can have the opportunity to provide services for an eighteen month old and other times we end up not finding out until a child is already into elementary school or even later. What we're hoping to establish here is a core set of social skills that would be considered developmentally needed in order to have a person really expand their ability to interact with others socially over their developmental growth in period of time.

Michele LaMarch...: 00:03:01 What we're really looking for is how do we, number one, identify what those skills are. So we've gone back to the literature and we've been studying this for some time and then how do we assess for those items as well as maybe some of the ways that literature has guided us in terms of best practices to teach those skills to our population. This is a really tough area and some of the topics that we're going to cover, although we know them perhaps from a broader perspective gut, they go much more deep into how the brain functions and some

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different areas that really, this particular presentation is not going to cover that kind of scope. So I just want to let you know that we will talk about some things more at a broad level and identify how you can in your practice be cognizant of this specific areas.

Michele LaMarch...: 00:03:52 You can increase skill deficits or areas where we're trying to increase those skills to reduce those deficits in order to accomplish social interaction early on in your treatment. Some of the objectives that we'll look at today is number one, identifying important social skills to assess for and treat with this particular age group. Number two, understand some strategies. And specific tasks and what we find in our review and what our discussion will bring is that it's more about tasks than it is necessarily something new in terms of strategies. A lot of the strategies that we are going to recommend are really ones that we already know and we use them in other areas. It's different ways of of presenting the tasks and perhaps focusing on different tasks and prioritizing a little bit in a in a randomized or even a very specific order that is going to be probably a change from what you're used to.

Michele LaMarch...: 00:04:52 And then when we do those tasks, we're hoping that we can increase overall the social competence of the students that we work with. And number three, increasing understanding of executive function definition and the tasks specifically related to building those executive function skills. I think you'll find that executive functions when you actually do some reading, it's really tough to find a definition that everyone agrees on. So we'll talk about that again from a broader perspective and really hone in on what tasks has the, you know, research community agreed upon to represent executive skill functions and looking at how we incorporate those really in this younger age group so we can get started right away with building those abilities. If you're here for continuing education credits, you'll see that there's a beginning code at the bottom. Take note and we can also answer any questions that you pose on our browser.

Michele LaMarch...: 00:05:48 We'll do our best to find those answers and if we can't do that tonight during the presentation, we'll try to get back with you. And again, my name is Michele and I welcome you to Special Learning and Step-by-Step Academy's first part in our social skills series, toddler to preschool. We'll be then moving on to

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elementary school as well as middle school high school. And of course we've covered some of the adult skills as well. And then we'll close later on because the adult skills we kind of separate into a different category of need. But we'll close with understanding different job skills and social skills related to the job environment. So we hope you take away a lot that you can incorporate in your practice today. Let's look at the broader list of social skills that most of us will in, in looking at this, be familiar with as it relates to working with the students with autism.

Michele LaMarch...: 00:06:41

Most of these areas as you'll see our core deficits in an autism diagnosis. And when we talk about them, we'll get into more specifics along the way. Joint attention. That was one of the areas that in our studies we've been able to find really a great amount of literature around as well as symbolic play. Those would be the first two things that we may look at when we're starting to work with an individual with autism and trying to establish those skills up front because they are predictors as you'll see to future success. Socially engaged imitation. That's going to lead us to some things including affect sharing and socially synchronous engagement and identify what that really means and how we can apply that in our classrooms. And also looking at some of the recent literature that indicates that applying those different strategies to accomplish this is really been an improvement for the students with autism spectrum disorders. We'll look also at rule-guided acts, working memory as well as social communication. Of course, all of these can be interrelated and you might see some crossover.

Michele LaMarch...: 00:07:53

So first let's talk about joint attention. Again, as I mentioned, this is an area that I think has really gained a lot of attention over the years. Certainly since I've started in my practice and serving children with autism. Some really great studies out there, Bridget Taylor does some fabulous work around this topic as well as the pivotal response training that does build in joint attention in their protocols and those requirements to get a child to engage in this particular activity. What's the definition? Some people get confused, especially when you're new at all of this. But the definition is that it's a behavior between two individuals and an object of interest at that moment and occurs during a communication, you know, interaction, it usually develops typically between the ages of eight to 15 months old.

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And this is one of the areas that we would commonly see as a deficit for kids with autism.

Michele LaMarch...: 00:08:50 And particularly how we define it is we've got a lack of, you know, eye contact. We have a lack of you know, seeking someone out to share or join their attention with yours and what you're interested in that moment. So again, children with autism typically don't engage in social behaviors, especially early on, but specifically joint attention, which then we know from the literature and from our practice that you do need to identify specific training protocols that your team members, your clinicians can apply in order to increase the skill as soon as possible.

Michele LaMarch...: 00:09:27 Joint attention interventions in the traditional sense include multiple ways of teaching this. We've got peer tutoring opportunities, certainly parent training as well as scripting and physical prompting consequences for the interventions can vary. What we're trying to see is an increase in attention perhaps and we will see that if it is effective as well as social communication interventions to increase joint attention in individuals with autism include responding to a bid made by another person as well as initiating bids to others in order to share a specific item that again, you're motivated buyer interested in in the moment so that you can accomplish a joint attention toward that particular item.

Michele LaMarch...: 00:10:18 Again, looking at some of those interventions, this repeats a few of them because what we find is we want to make sure everybody is looking at these interventions in order to apply them specifically in their practice peer tutoring. Those are things that, especially in a sibling situation and perhaps even a classroom, you might be able to have access to peer models that will be able to help, but parent training is going to be crucial. What we find in our practice is following something like the pivotal response training protocol is and real easy implementable you know, program with parents in the home and truly the parents at this level when we're first starting out. In order for them to see immediate change, we need to increase the, you know, social communication and the functional communication of their child in order to also see an effect on decreasing problem behaviors.

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Michele LaMarch...: 00:11:17

So we always talk about communication is the first piece as part of that communication. However, we want to make sure that we're incorporating that responding to bids made by others as well as initiating bids by others, incorporating, you know, the eye contact and that interaction, that social interaction and perhaps even using gestures as a means to get this going. So again, the consequences that we're looking for is to increase attention, increased social communication and overall these are going to be predictors to later successful outcomes as it relates to language and rapport and relationships. Studies that have focused on increasing joint attention have also shown to increase overall communication skills of the child with autism. So children who lack these skills have shown to have fewer language skills compared to those who, you know, actually engage in this activity. And when we're looking at this, again, we can say that this can be verbal or you know, a non-vocal communication attempts such as gesturing or even the exchange of a picture icon or a sign, you know, that a child may present.

Michele LaMarch...: 00:12:28

So as we talk about how to structure this, I focus back on what can we do immediately in the natural environment in terms of helping the parents through some parent training and also focusing on our primary goal of increasing communication but incorporating the joint attention components in our response expectations of the children that we work with. So instead of stepping in and also you know, and trying to focus on perhaps compliance as well as like the following directions and some of the other basic things that we do. When we first start out with early learners imitation huge, which we will talk about that's definitely has a place in this in this particular you know, discussion because it should be one of the initial skills that we're going to target but we really need to make sure that everyone has strong skills and establishing joint attention with the kids that they work with and if they're not able to get down on their level and try to be, you know, implement some of those procedures and protocols.

Michele LaMarch...: 00:13:30

Again, I really do favor the pivotal response training protocol very easy to read, easy to implement and also easy to train or transfer that technology over to parents and staff members who maybe have little experience at this point. It doesn't have to be a vocal response from the child. It can be gesturing or

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some, you know, non verbal communication that you may see and it is going to focus as I indicated earlier and you know includes here. It's a focus on attending to the same object at the same time. So again, you're kind of sharing that attention and it's joined. So if you think of a triangle when we try to visualize thing, you have the object at the top, you have person one over here, person two on the other point, all of those things need to be interconnected in order for it to accomplish joint attention.

Michele LaMarch...: 00:14:21

It was found that in the studies actually the most simple interventions are the ones that produced greater increases in responding to bids for joint attention. So when we're talking about responding to bids, we're talking about someone coming up to our student with autism and bidding for their attention to share with that object that they may be motivated in that moment. Interventions again aren't things that are new to us as behavior analysts, but include components such as systematic prompting, prompt fading techniques, shaping obviously the application of reinforcement, increasing motivation and you know, becoming really good observers of behavior so that you can contrive or utilize the opportunities that are presented to you in the natural environment. And also imitation. Those are the core concepts of, you know, what we use in terms of successful prompting interventions for our students with autism. And here it's going to be no different. Research has actually shown that initiating bids.

Michele LaMarch...: 00:15:23

So if we were trying to increase the ability for the child that we work with to now go and initiate to get someone's attention and share what they're interested in in that moment, that generally resulted in the child receiving the motivating tangible items. So the best place that we've found a target, this right from the beginning is in functional communication training. And so let's talk about mand training. That might be another phrase that you use in your practice. Where do we start all intervention typically around communication. Fortunately that allows us the opportunity to work on joint attention skills at the same time. Let's use the example of that triangle. The child sees an item that they want at the tip of the triangle. Perhaps it's a drink from the refrigerator. Child is the person one mom is person two or a parent is person two. Child goes to the parent, goes to the drink or does some sort of combination there of and now we establish a shared attention to that drink.

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Michele LaMarch...: 00:16:26 So then what is the parent likely to do? They're likely to deliver the drink in that moment because the child communicated successfully. As part of that interaction you've established joint attention. So one thing that we do need to be aware of is that sometimes the child may actually be requesting for the item versus actually obtaining the attention from another person. And that's where in the initial stages of training, when I work with parents and new staff members, we really do focus on making sure that there's some social interaction by trying to establish some eye contact right from the beginning as part of our response expectation. And that way we know at least that we're formulating the opportunity and the expectation that there's going to be some interaction that you're not going to get this item unless you interact with another party. So if that child is just pointing and trying to get that item, but not really interacting with this person, then joint attention hasn't been established.

Michele LaMarch...: 00:17:29 They may be trying to you know, try to work towards that or it's a step in the right direction certainly, but until they realize that they need to look to another party in order to obtain the item that they're interested in, we haven't accomplished that triangle. And what we're trying to do is make certain that they understand all communication is a social act. Therefore we want to incorporate those response expectations right from the beginning. So teaching individuals to respond to bids for joint attention actually has not been shown to increase their initiating of bids of joint attention. So there are two completely separate skillsets and in the way that we might apply them in our programming or in our treatment plan. Moving on, when we talk about some examples of what joint attention can be, it would be showing a toy to someone else looking together at something interesting out of a window.

Michele LaMarch...: 00:18:25 Perhaps even reading together and sharing picture books. A child can be pointing to an object as I had mentioned, even if it's something that they want in that moment and then looking to get the parent's attention as well. Again, that's that combination, got to get that triangle to occur. It could also be a student coming to get someone to show them something, share the grade that they got on their report card or their assignment, maybe share a drawing or coloring, you know, sample that they've just finished an art class. It could be a number of

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different activities. This again is something that is traditionally developed naturally between eight and fifteen months. When we look at kids with autism, we can see that this is not commonly something that they bring to the table and it's one of those initial deficit areas that we want to work on.

Michele LaMarch...: 00:19:15 Why? Let's take a look at why. We have a few studies that we referenced here that looked at impairments with joint attention in this study in particular that we're talking about from 2012 examined whether preschoolers with autism oriented toward a social or a non social stimulus. How long those students were able to attend to an object. They also looked at whether the children were able to understand the intent of another and the children's joint attention skills overall. The study was conducted to see if those relationships between the cognitive processes of social orientation, attention and understanding of intent, initiation and response to joint attention really existed. And when we talk about that, these are things that you want to make note of in terms of what social skills are super important that we need to be recognizing and possibly trying to develop ways to teach in the toddler preschool ages, process of social orientation, attention, understanding of intent, and we'll talk about that a little bit later as well.

Michele LaMarch...: 00:20:19 Initiation as well as responding to bids for attention or joint attention. So those would be some of your core areas to start with. The authors of this study did find that joint attention skills were also related to mental age and language abilities and they found support that understanding another's intent was correlated to responding to joint attention initiations. When we talk about pivotal response training, the reason I bring that up is it's designed to teach several different pivotal, you know, behaviors. But one of the first ones that their protocol, you know, talks about is communication. And so when we look at that particular protocol, it establishes the idea that we can follow a child in the moment, follow their motivation in that moment and then capitalize on that moment to establish a request for what they may be interested in. So most of us at least, you know, probably watching this are very familiar with how to do mand training or functional communication training.

Michele LaMarch...: 00:21:21 And if we are having difficulty, you know, getting parents to buy into that or even follow a specific, you know, set of rules or

processes that make them successful. I would definitely encourage you to go back. But because it's based in a child's motivation in the moment, the likelihood that I'll be able to apply joint attention training and incorporate that in there is going to be increased. I should have a higher frequency of opportunities in order to focus on this particular area. And again, it isn't necessarily taught in isolation, but along those lines that it is a social interaction and communication to get your basic needs and wants met and your motivations in the moment get access to those items is probably going to be one of the easier areas to accomplish this and because you have a motivated learner who wants to participate and they have something in mind they'd like to get in the end.

Michele LaMarch...: 00:22:14 So again, going back to the mand training concepts, that's going to be an area that would be primarily where I would start with our staff here. When we're starting with a brand new student and it doesn't necessarily based on age or you know, how far along a child is in their academic development. We really want to make sure that this is a strong skill that's already established and even though you may have academic skills, often we find that kids who have academic skills have splinter skills and still an area of deficit tends to be in the social interaction, communication and engagement area. So we might need to go back and start with this as well. Even though we are talking specifically about the toddler preschool age group, if we can establish joint attention with an adult, we want to also see if we can translate that over to a peer situation.

Michele LaMarch...: 00:23:07 So going back to that you know, peer mediated, you know, opportunities or peer tutoring opportunities, utilizing siblings as well as neighbors in your neighborhood may be a great way to start. Because we want to make sure that they understand that joint attention and communication doesn't just happen with one person in one setting. We've got to be able to make it functional and the more that we can get them to engage with multiple people, the more opportunities we have to shape some of these other more difficult and complex concepts that we're going to talk about here forward. So keep those things in mind.

Michele LaMarch...: 00:23:46 Joint attention impairments continued here when we're talking about it. The authors also found that there's a small correlation between social preference and initiation of joint attention. And

this adds to the literature that already is out there that suggests that initiating joint attention is related to social motivation. It isn't necessarily the case. The study didn't find any links between ability to attend to items for a long period of time and joint attention skills as well. So it provided a really a wealth of information on how joint attention skills can be seen almost as their own and yet they're incorporated and probably included or components of more complex social behaviors that you're going to see, whether it be in requesting for the things that you want and you like perhaps it's even in a conversation, perhaps it's responding in the classroom. All of those things require the use of joint attention skills.

Michele LaMarch...: 00:24:44

Another study looked at a teacher-initiated intervention. This one looked at a program called JASP/ER and it's an intervention strategy specifically for teaching joint attention skills. JASP/ER is something that you can actually find some really short clips of on the autism speaks website. And they also have a really nice explanation about what it is, how it can be used and those sorts of things. And how it was used. Specifically in these studies. It is a validated intervention and it consists of the following areas. Number one, you're setting up for a motivating environment. We want to make sure there's lots of opportunity in order to work on joint attention skills. The teacher then performs a play action immediately after the child, so the teachers joining and what we're looking for here is perhaps a response to a bid for joint attention. And then we may even see that the child is prompted by the teacher to play with the toys that he or she is showing an interest in.

Michele LaMarch...: 00:25:46

So now we're trying to use our prompts, strategies and errorless learning techniques in order to engage the child and make sure that we're moving in the right direction. Then the teacher and the child create repeatable play routines that have specific roles for each person. Meanwhile, they alter those play routines a little bit at a time. This gives the child an ability or an opportunity really to communicate, gives them time to communicate. And then the teacher talks about the toys with the child as they're going through this intervention. So it's a very systematic, as you'll see in the list here, a systematic set of responses in and instructions or demands that are being presented here that then can lead to increased joint attention. They'll then create opportunities for developmentally

appropriate joint attention skills during the play routines. So the teacher will model all of these skills and they'll stay again at the eye level.

Michele LaMarch...: 00:26:44 Remember how I talked about getting down at the level of the child and making sure that you're literally in proximity of that child so that eye eye contact is more likely to occur. And perhaps you're even, you know, putting in like prompts strategies where you're delaying the delivery of a reinforcer in that moment when you know the child's motivated until you achieve the response of the eye contact. And now the teacher here as an example will stay at that eye level of the child in order to encourage that to occur. After the study was done, the authors did report that there positive outcomes and more learning of joint attention occurred, including joint engagement skills using these techniques.

Michele LaMarch...: 00:27:31 Joint attention is again, one of the areas that we would look at first, but it doesn't always work by itself and it can be incorporated with other areas and skills that we're going to focus on. In the beginning, during the toddler and preschool years. One of which is symbolic play. Symbolic play will usually occur when kids are using objects during their play time, giving them multiple meanings and multiple uses of those objects. So we'll give some examples here in a second book. It's creative play, it's being able to imagine and it's play that results in kids having the understanding that an object can have more than one purpose and then it can be used in a creative manner and utilized for a different purpose than what it was designed for. Some great examples are easily, you know, visualized examples include using a flashlight as a microphone using a banana as a telephone or using a box as a house.

Michele LaMarch...: 00:28:25 How many times do we joke that, you know, when a gift arrives in the mail and it comes in the box and the kids opened the box, or whether it's at a holiday or a birthday, they open that present. And what do they go and play with first? It's the box and there's commercials that are out there about that, that, you know, remind us that that is what kids like to do. That is incorporating symbolic play. We don't often see that present in kids with autism when we first started working with them. And it would be an area that we want to try to increase and cross over as well into the joint attention training that we're trying to

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you know, incorporate. And so we can increase both joint attention and symbolic play simultaneously. But let's focus straight on the symbolic play.

Michele LaMarch...: 00:29:13

Number one, we know it's difficult for kids with autism to identify with other individuals, specifically their friends or their peers when we're talking about abstract things such as facial expressions, attitudes, other person's perspective. And it's thought that children who lack this ability also demonstrate less creative or symbolic play. They do believe that there is a functional relation there. Research has compared the play patterns of children with and without autism in order to determine the types of and creative symbolic play that both groups engage in, whether it be in spontaneous play and modeled play. Both of those were examined as part of some of these studies.

Michele LaMarch...: 00:29:59

The following were rated during symbolic play. And these would be things that I would absolutely put on your list of must teach social skills when we're talking about the toddler to preschool years. Attribution of symbolic meaning to the actual play object. So imagining giving objects the alternative uses or you know, finding ways to have it have different meaning or purposes. Another skill area that's observed is potential for flexible use of the objects. So using them in multiple ways. Self-Awareness, this would be awareness that the child possesses when engaged in creativity and investment in symbolic meetings. And that would be how much the child cares about the new creative use of the object. So what's the motivation behind it and is there motivation, creativity, the amount of new creative ideas that are introduced in play by the child as well as fun. And that might be hard to measure, but the amount of fun that the child appeared to be having during play. Two conditions were studied here.

Michele LaMarch...: 00:31:02

Both identifying spontaneous and modeled play were examined. They had a Dow condition and a school condition. Let's look and see what they found out. The results here, because participants in both groups were matched on verbal ability. So they were trying to, you know, minimize those variables in the study using a specific assessment tool. Of course, it was found that children with autism engaged in pretend play as well. Compared to their matched peers,

however, those children demonstrated a lower ability to engage in pretend symbolic play. Differences were seen in the spontaneous condition and the model condition between the two groups.

Michele LaMarch...: 00:31:46 Other studies that talk about symbolic play that would give us some ideas of how perhaps to target it within our own sessions include this one. Here they look to at the relationship of symbolic play to symptomatology, nonverbal cognitive ability, expressive and receptive language as well as social development and the children with autism spectrum disorders. The methods that were used, let's take a look within group design was employed to determine which features of children with ASD are linked to competence in symbolic play behavior. Their hypothesis is this, more advanced symbolic play skills would be related to lower autistic symptomatology. Looking at the diagnostic criteria and higher nonverbal cognitive abilities based on say, IQ tests and better developed social skills data were collected for a ten-year period as part of this assessment procedure. Participants research files were then systematically reviewed and data were extracted from those assessment reports and case notes. In addition to the original research protocols.

Michele LaMarch...: 00:32:57 Here's the results. First, the results indicate that combined chronological age, symptom severity, nonverbal mental age, expressive language, receptive language and social development predicted fifty six percent of the variance and symbolic play. So when we talk about what social skills should we be focused on in toddler and preschool years, it comes back to some things that we probably already know and we're maybe even implementing such as increased expressive language abilities, receptive identification and language. And those things are things that are partially predicting the success of them being able to apply skills such as symbolic play skills, which then is a predictor in future success. Nonverbal cognitive ability was a significant and unique protector of symbolic play even after controlling for all other variables. Although we can't necessarily predict how many gains a student with autism is going to achieve when we start treatment. But hopefully when we get them at a young enough age, we can start working on increasing cognitive ability by finding better teaching strategies to increase their responses.

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Michele LaMarch...: 00:34:13

And perhaps even when you look at nonverbal cognitive abilities, it may even be a situation where those children were untestable from, you know, the very first time that they were assessed. At least that's something that we see in our practice. And so then we spend some time in treatment and then we go back and we may retest at that point to see if we can establish some level of baseline even though treatments already existed prior, but level of cognitive ability baseline so that we have something to compare to as we continue to progress through treatment. Social development on the other hand did not significantly predict unique variants in symbolic play. Symptom severity was related to symbolic play when controlling for age and any other single developmental domain. However, what they say is this relationship disappeared when controlling for more than one of the developmental domains.

Michele LaMarch...: 00:35:05

So what we're looking at here is that it really may not have an effect unless we are looking at multiple areas. Children with greater cognitive impairment did show lower symbolic play skills. I think naturally that may seem like common sense. And again, going back to how can we increase that cognitive ability right from the beginning and as quickly as possible so that we can move from joint attention and start incorporating symbolic play into the child's repertoire and then also combine both so that we continue to build their possibility for success in the future when we're talking about social interaction and communication. There was a very strong relationship between cognitive ability and symbolic play and it's consistent with the clinical knowledge that we already have suggesting that either play leads to improved cognitive functioning. That could be one or that specific cognitive developments are a prerequisite in order to participate and demonstrate symbolic play or perhaps it's that both are true.

Michele LaMarch...: 00:36:11

So those are some things to consider when you're determining what should I teach and why and what you know, why am I choosing this as a priority in my treatment planning? If we can go with the idea that it is possible teaching play will lead to improve cognitive functioning, then we want to absolutely make certain that we're incorporating a lot of play skills right up front and we want to make sure that we're giving enough opportunity to get that repetition and practice and expand on those play skills as we go. Language and its relevance to

symbolic play in this case only expressive language, not the receptive actually was uniquely related to the play age when the entire population was sampled then social development was not uniquely related to symbolic play, but it does indicate that nonverbal cognitive ability appeared to moderate the relationship between social development and planning.

Michele LaMarch...: 00:37:09 There is some link there and what we want to be able to do is identify how to break those down into smaller components in order to develop a treatment plan that we know we're targeting things of priority. So we're using our time wisely right from the start in order to give that child again the best opportunities in the future that may impact their success if we're not doing those things. So play skills we talked about specifically what are some other things that we, you know, discussed, we've talked about making sure that you can respond to bids for attention as well as initiate those bids for attention and play skills goes beyond just knowing how to play with a specific object in the way that it was designed, but being able to move to the symbolic play area where now we can start to use that object for different purposes.

Michele LaMarch...: 00:38:01 Again, going back to you know, the microphone example as well as the banana is a telephone sort of example. So identifying things in the environment that now we can start to incorporate in our play repertoire and give examples of when we're teaching the kids that we work with. Overall the conclusions of that particular study being a ten-year study, lots of information. The authors then state that it appears the development of symbolic play in children with autism spectrum disorders is not tied just to one area of development, but instead linked to a number of areas of functioning, making our job all the more difficult and having us look at really how many different priorities do we have to have on target, right. In our treatment plans, certainly from the beginning. So going back to joint attention as well as symbolic play.

Michele LaMarch...: 00:38:57 And now how those two are going to combine. The findings of the study do provide additional support for the inclusion of symbolic play measures and the diagnostic tools that we use and can also be really informative in terms of the diagnostic process. So I do believe that, you know, we do see some of that incorporated in the aid OS for example, if you're familiar with

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that assessment tool where the kids are offered the opportunity to show that, you know, they can follow a specific sequence or participate in a birthday party and those sorts of things. But it goes beyond that. And again, having items have multiple meanings or contexts or uses and looking at building the symbolism, you know, around it. And we can now generalize and it definitely goes into the abstract areas, but trying to find ways to incorporate that into our teaching, whether we're having to teach that through really intense instruction so that we're teaching multiple, you know, exemplars or uses of a particular item and that it can be this. And because we're pretending that the banana is a phone, we can pretend to eat the banana. We can also pretend that the banana is a spoon perhaps, and you come up with all of these different options so that we can maybe build those skillsets over a period of practice and time.

Michele LaMarch...: 00:40:18 Looking at joint attention combined with symbolic play there are studies that have focused on increasing these two things simultaneously as I mentioned earlier on. Let's take a look at some of those. Joint attention again is I'm focusing on the imitation of the play routines in this particular intervention. The symbolic play is focusing on symbolic play routines. So we talk about imitation here. We want to make sure that that is one of the core skills or behaviors that we're trying to increase in a child's repertoire. And in most cases that's already given. I think that we've seen that that's in pretty much all of the treatment plans that we would be presenting. And I've not seen any situation where that's been ignored. So once we've established that imitation is something that a child does do and will respond to that modeling, we can look at really expanding that play routine in that repertoire and start to incorporate both of these interventions so that we're increasing joint attention and symbolic play at the same time. For both of these, the instructors here in this study shaped the child's joint attention.

Michele LaMarch...: 00:41:27 So when I talked about I think it was the JASP/ER model just a few slides ago, or even before that, when I mentioned getting down to the child's level, I'm gonna go back to that. We didn't have a way to prompt the eye contact to occur. I can't go in there and make a child's eyes move, but I have to shape those responses over a period of time. So shaping is an area that we would focus on in training right up front here. They shape the

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Chicago, IL 60611
Phone : (800) 806-5718

child's joint attention skills and symbolic play goals were then established prior to the study. Prompting and reinforcement, again through shaping procedures were provided within discreet trial training beginning at the table. So they did a very structured teaching format, something that most behavior analysts are certainly familiar with. It was adult driven and it was followed by then transitioning to the floor where then we could practice those skills that we were doing at the table in a more natural environment and get those to carry over or generalize, which then shifted to child led.

Michele LaMarch...: 00:42:27

We can now follow what they're motivated by in the moment and try to capitalize on that motivation to get a really high level participant and willing learner to be with us and then utilize that opportunity to create and shape joint attention and shared attention really towards something that they're motivated by as well as trying to expand into teaching them that items can have multiple uses. Within the natural environment then the instructor developed and expanded those play routines using the previous interests of the child and the new ones that are being presented in the moment. Now when measuring, we always try to make sure that we're making data driven decisions in our practice. Training joint attention here was measured using a social communication scale as well as joint attention within the caregiver child interaction, so observing what was going on with the caregiver and whether there was an impact on those interactions.

Michele LaMarch...: 00:43:24

Training symbolic play was measured using structured play assessments as well as play within the caregiver child interactions as well. The results of this particular study compared to the control group, both intervention groups, increased joint engagement, joint attention and symbolic play. Generalization to the caregiver and child interaction from the structured training sessions also occurred, which is absolutely crucial and what we're trying to accomplish. Everything that we teach in a clinical setting, if we can't move it to the natural environment and we're not identifying things that are already available in the natural environment, it's very unlikely that those skills of course are going to be maintained there without some adult intervention or reinforcement along the way. Those things aren't always available. We want to see that not only can you do it in different locations perhaps, but also with different

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Chicago, IL 60611
Phone : (800) 806-5718

people and with the items that are available to you and if not expand the items that are available to you in your natural environment so the natural environment is likely to initiate or elicit those behaviors later on so that you'll continue to practice them and maintain those skills.

Michele LaMarch...: 00:44:38

Research also examined two treatment interventions, excuse me, comparing joint attention and symbolic play using the amount of days to mastery in children with autism spectrum disorders. Here, two interventions were implied. Both interventions were implemented sequentially every day. We have naturalistic one and this is considered a primer intervention. The instructor initiated this, it's implemented to get the child ready for the targeted goal in the second intervention. So we're priming them in order to be successful in the next level. Instructors provided prompting and reinforcement at the table in a structured environment very similar to what we just heard before. And now we're moving to a naturalistic part two. Following naturalistic one intervention, the child initiated focused on joint attention skills. So now we shift so that it's child initiated and we're trying to shape those joint attention skills with the child. In those motivating moments. Instructor imitated the child instead of the other way around and then participants were given the opportunity to respond to novel and familiar toys. If no response was given, the instructor then provided prompting to engage with that activity. Children were then provided the opportunity to generalize any skills taught from the naturalistic one scenario and intervention to this intervention here.

Michele LaMarch...: 00:46:08

So that'll give you a way that you can probably apply this in your own practice. We're trying to increase joint attention and symbolic play. We can set it up in the way that we are formally trained and are familiar with where it's in a structured sitting we use the discrete trial training methods and we're providing you know, prompts and reinforcement. We establish that specific skill set here and then we carry it down to naturalistic part two. Same thing we're looking to generalize. We offer new novel opportunities. We see if we can shape the joint attention while we're in that natural environment. Very similar to study number one. And then we identify if they're not engaging with that new or novel item, we're going to give them the prompts to do so. So there is nothing other than prompting and reinforcing and

shaping all throughout this process in order to achieve our goals.

Michele LaMarch...: 00:47:00 This can be a pretty time intensive thing and we're not necessarily going to see an impact or change, you know, immediately. But often I can say in my practice, even during assessment when I'm first meeting a child, I literally focused on this whole joint attention process and most times I'm able to establish some level of interaction, not necessarily joint attention on another object, but that eye contact recognition and a social interaction between me and that child. So it is possible in shorts, you know, spurs to accomplish those tasks. Not necessarily to accomplish both the joint attention and symbolic play of course. But it is definitely something that we've seen in our practice as a really successful intervention in terms of just applying the basics, you know, the principles of reinforcement and utilizing our prompts strategies. So we shape and we fade here. What they learned was the acquisition rate for learning a new skill was faster when it was in the structured setting.

Michele LaMarch...: 00:48:05 They took fewer days for them to master that play skill than it did joint attention skills. It was found that participants with higher language age and higher mental age mastered target skills faster than participants with lower language and mental age. And using that structured setting and intervention protocol as a training tool prior to the naturalistic setting increased generalization of skills later on in the naturalistic setting. It also shows that participants had an easier time learning play skills compared to joint attention skills, so again, it's not necessarily going to happen quickly. It could be very time intensive labor intensive in order to establish this, but we know it is a predictor for future social language and social skill development and interaction with others as they get older.

Michele LaMarch...: 00:49:02 Let's look at another study here that we can pull some strategies from to use in our own practice and that we've done here in our own agency. What we look at in this situation is the interactions between joint attention and symbolic play. Joint attention and symbolic play skills are definitely deficits in children with autism as we know. But what we also know, and I've mentioned it here on there already, they are predictive of later success in learning social success and skills as well as

500 N Michigan Ave Suite 300
Chicago, IL 60611
Phone : (800) 806-5718

language development. So the children in this study were trained in joint attention, in play skills in the following way. Number one, they were trained for a set period of time. This would be something that might be very possible to implement in your clinic environment, in your home environment, and even in your school environments thirty minutes per day for five to six weeks.

Michele LaMarch...: 00:49:54

The sessions were one-on-one. The sessions then consisted of five to eight minutes of discrete trials and shaping followed by natural environment teaching. And the study suggested that children with autism can actually be taught both joint attention and play skills using this format. This is one that we're looking to possibly replicate in our own clinic because it does seem like a very easy protocol to follow. So when we're talking about initial IEP goals and objectives with our preschoolers were sometimes overwhelmed by trying to get that child ready to be in kindergarten. And then what we find is we're focused so much on say the pre academic areas certainly communication is almost always in there, but we're not really focused so much on that social interaction because it's a tough skill to teach. What we probably need to do is not worry so much about the social interaction with their peers in this moment when we're first starting, but again, establishing joint attention skills and play skills with an adult in a structured setting and then carrying that over, that's much easier for us to again, control variables that are, you know, present in the classroom as well as monitor progress in, you know, through data collection and then carry over into a natural situation, say like in a circle time or in a center with another child after they've been able to generalize that in that center with the adult that they've already mastered it with perhaps at the table.

Michele LaMarch...: 00:51:26

So I really love how it's a very easy protocol to replicate and I think that in really anyone's practice you are probably going to be successful in training them on that specific protocol and then still see an increase in some of these skills that just thirty minutes a day. Another area about joint attention and symbolic play, here's some children that were also receiving targeted interventions for these two areas. This study is a five year followup study on kids who were given an intervention that targeted both joint attention and symbolic play earlier. The authors were interested in the development of language. Here's

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Chicago, IL 60611
Phone : (800) 806-5718

the core question. Is it really a predictor of future success and the cognitive development of those specific participants? What they found five years later is that five of the forty participants were enrolled in general education classrooms with no special education services. Seventeen of those participants were enrolled in a general education classroom with some special ed services and supports.

Michele LaMarch...: 00:52:31

While eighteen participants were in a special education classroom, all on its own. Eighty percent of those participants were able to demonstrate functional spoken language. And the main predictor of this ability was the development of play skills at age three or four. The participants who had higher cognitive functioning did show more and learned more flexibility in play also at a younger age. So really here we see that there are possibilities that this is going to have an impact on later abilities and opportunities that they have to be in their community with their peers in regular education, whether it's with some supports or no supports and it does have an impact. So we want to make sure we're focusing on this first and foremost. I know I'm repeating myself as it relates to that, but super, super important to start with. Some other results that they were able to identify as that the predictors of having a larger spoken vocabulary were number one, early intervention. Number two, learning to initiate that joint attention as well as number three, having more play skills in your repertoire. And number four, receiving specific targeted instruction or intervention in joint attention and symbolic play. Based on these results as you can imagine, the authors do recommend beginning treatment before the age of five.

Michele LaMarch...: 00:54:07

Let's move on now to another area of skill development. This is called socially-engaged imitation. And what we're talking about here is the act of imitating behaviors while engaged with another person. The engagement can be measured with the use of eye contact from one person to another. So we're trying to go beyond just the basic imitation that I do, a specific action and you'll imitate or mimic that but actually trying to increase the level of social engagement as part of that imitation, you know, interaction. So trying to establish eye contact, maybe some facial expressions and you know you know, acknowledgement that you're there as the other partner that's in this social interaction. The skill will increase reciprocal play abilities,

reciprocal communication and engagement as well as initiation of communication skills and initiation of play and interaction.

Michele LaMarch...: 00:55:11 Before I just move over to affect sharing I want to say one more thing about the imitation component in terms of you know, socially-imitated or socially-engaged in mutation. And the one thing here is very similar to joint attention that we've found in applying it in our practice and that is it needs to be shaped over time. So the response expectation is what this comes down to and then our prompt levels are going to be determined based on how much we're going to have to step in there and what kind of response we're getting from the child early on. Typically in most situations we're seeing that the kids don't necessarily recognize that we're there, understand that we expect them to engage socially by looking at us and those sorts of things. So again, I'll use some of the same techniques and strategies the basics prompting, fading those prompts through the shaping procedures that we're going to apply and using my reinforcement.

Michele LaMarch...: 00:56:06 But I'm going to incorporate that as part of my response expectation up front. That way we have lots of opportunity to be working on this because we're already working on imitation skills anyway within our treatment plan program. Moving on to affect sharing, affect sharing is where we're looking at sharing and experiencing the same emotions, feelings and thoughts of others. This one is really, really tough and especially when you're talking about students with autism, not an area that's natural to them in most cases and they typically experience difficulty in their ability to be cognizant of the emotions of others and understand, interpret those emotions and how then they might change their behavior or respond to that emotion or affect that's being displayed. What we're talking about here is being able to recognize that another person is displaying, say a facial expression and an emotion and it's representing that they're happy.

Michele LaMarch...: 00:57:05 And this would be a situation where now the student with autism recognizes that and then joins them in that, in that particular affect or facial expression that they're seeing. So again, it's an affect sharing. They recognize and they respond. The importance of this skill is that it increases interactions. It also increases social awareness as you can imagine. And finally

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Chicago, IL 60611
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it increases symbolic play here yet another one of the predictors we talked about earlier. So what is it exactly? It's sharing emotions between two people. It is what we would say, one of the core deficits in kids with autism and typically it's developed by the age of two. It's an area that can be tested by seeing if the child imitates their peers, their adults, their family members by say, you know, imitating their funny faces or silly things that the, you know, that the adult may engage in and then laughing together.

Michele LaMarch...: 00:58:06

Those would be examples of affect sharing. So when you think about it and you're trying to develop your treatment plan, what might be an area that you can start with? Perhaps it's actually doing funny things with objects that will help prompt with those funny things are. And then you try to train and remove those objects over time or fade them so that just the action is around the facial expression and what silly things that you know you're doing with your face and your intonation, your you know, your vocalizations and then also the laughing and see if you can get some of that invitation to occur there so that you can demonstrate affect sharing over time. It's an important skill because it does allow one person to engage with others in different social situations, share emotions. And this is one of the areas that we often find is not targeted until a child is probably much older and we presume has a pretty good requisite of skills in their repertoire.

Michele LaMarch...: 00:59:07

Such as, you know, being able to comply and identify emotions as well as even demonstrate those emotions. And what we're saying here is that we may not need to actually give them a label at this point, but we might need to do is to identify if we can get the student to recognize that there is a social opportunity here and that there's an importance and use those imitation skills that we've been trying to build in their repertoire to apply it functionally in a social manner that might then help them gain this particular skill and help them later on and hopefully you know, get them ready for some of those harder concepts when we're actually asking them to label these emotions later on. The skill is definitely related to theory of mind and again, in at least our practice, although it's something that has become more prevalent in discussion when we talk about others' perspective theory of mind executive functioning, those sorts of things.

Michele LaMarch...: 01:00:05 It's definitely a topic that has been studied and we've been incorporating in our treatment plans over the last several years. But it wasn't something that we were first trained on as behavior analyst. And as you know, the literature continues to increase. We need to keep starting you know, keep up with that literature and try to understand these concepts in a better fashion and ways to break those concepts down into tangible activities that we can now train and the more activities that we can train and establish in a child's repertoire perhaps then we're going to be able to, you know, connect all of those and and see if we can bridge those gaps. Not easy stuff to do. Some examples of affect sharing include the following, sharing a joke with somebody or a funny story feeling sad when somebody tells you about a sad event that's just experience, you know, that they've just experienced or is just happened to them crying together over a sad movie.

Michele LaMarch...: 01:01:03 Also being surprised or excited together over an unexpected event. Methods that we use to teach this skill traditionally include social stories, peer modeling and then specific direct instruction targeting the skill. When I'm working with the toddler and preschool age group, we find that the last method is really the most successful first and foremost, depending upon a child's cognitive level of course and their interest in say pictures and their ability to imitate from you know, picture examples and those sorts of things. But we don't often have a lot of peer modeling available to us and we want to make sure that if we do have peer modeling, we're able to capitalize on those moments that it is available to us. So we try to pre-teach some of these things and direct instruction targeting the skill in order to be able to then carry it over into these environments later.

Michele LaMarch...: 01:01:57 Let's look at a couple of studies here. In this particular example from 2011 they're looking at an intervention that specifically targeted the socially synchronous, I want to make sure I say that right, engagement with toddlers with autism. The study targeted affect sharing as one of the skills to be taught and the curriculum used in this study used high levels of imitation. Again, going back to what I said earlier, capitalize on some of the basic skills that we use in order to have our kids increase their participation and their ability to follow instructions and gain compliance and all those things, but now apply them more

in the social context instead of just in a adult directed context, if that makes sense. This study suggested that the initiation of joint attention and shared positive affect were often present at the same time. The skills are also a factor in the development of expressive language and increased nonverbal cognitive functioning.

Michele LaMarch...: 01:03:01 The study also suggested that with a developmentally-based curriculum and specific response expectations, again, I think you probably caught I said that multiple times and strategies such as shaping and reinforcement skills and procedures to teach these skills, young children with autism spectrum disorders can actually make significant progress in this area and just a short period of time. So it's really encouraging when we talk about increasing socially synchronous engagement. Let's define this here. This refers to the combination of joint attention, socially-engaged imitation and affect sharing all in one bucket so to speak. But it's also has to do with timing. And when we're looking at what that really means, we want to be able to identify that you're anticipating what others are going to do and how they're going to respond. And then you're able to then join them in their responses and mimic their responses so that you're sharing an effect so that you have joint attention to the things that they may be interested in the moment.

Michele LaMarch...: 01:04:09 And you have socially-engaged imitation because again, you're mimicking what they're engaging in at that moment as well. So part of that requires that we need to be able to identify the social behavior that's occurring in the moment. And this is where it gets pretty technical and can, we can go in much more depth if you want to you know, look at the articles more specifically, but from a treatment perspective, there are a few things you definitely need to take away from this. And one would be that you identify the behavior and then you are able to interpret or identify the facial expression of another, imitate that facial expression and demonstrate that you're able to respond appropriately to that facial expression. And we're going to assume in this situation that the facial expression is going to give us a clear understanding of what affect that particular person is demonstrating at that moment.

Michele LaMarch...: 01:05:00 So again, taking our imitation skills and moving them into a more complex social context but combining it with joint

attention. So we're sharing our attention on something that is important to the other person who is my social partner, sharing the affect and imitating that affect all in one synchronous engagement all at once. Very tough stuff. So increasing this, there are definitely some research studies that talk about this as it relates to toddlers diagnosed with autism spectrum disorders and they compared two interventions and their impact on those individuals. The two interventions included interpersonal synchrony as well as non inter-personal synchrony. And what I already described earlier is again it's that imitating, it's that mimicking and what we're looking for is not just behavioral matching but timing in our matching of what's going on in the moment. It's being able to almost have this does social dance occur so I recognize what's going on. I respond and the timing is all synchronous and then it not only matches from a behavioral perspective but again from that timing perspective, so now we can say that we have interpersonal synchrony that has been established here.

Michele LaMarch...: 01:06:21

Both the interpersonal synchrony and non-interpersonal synchrony groups include the following. It included an assessment and evaluation, a programming system for the infants and children developmental curriculum based on specific participant needs and profiles. It Included as well parent education classes, which we talked about earlier, who's going to have access and more hours with the child. It's most likely the parents. We want to make sure that we set them up for success and understanding on the importance of working on these social skills because it is predictor for language functioning later on even academic success and of course social success, which is somewhat intertwined in everything that their future brings coming up here. They also provided home-based parent training sessions as well. Both interventions utilize the same curriculum. And one of the things that I'm hoping you'll take away from this, what's been mentioned a few times here, that it's a developmental curriculum.

Michele LaMarch...: 01:07:22

It's not something necessarily that behavior analyst have had much experience with, unless that's something that they've studied on their own or as part of their degree and specialization. The things we're talking about here are based in developmental literature and so we're looking at what would a child be expected to do and at approximately what age and

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then we're working on those developmental milestones through our intensive training options in our treatment. Anyhow, going back, both interventions use the same curriculum with the addition of interpersonal synchrony to the one group. So it's having that interpersonal synchrony or synchronous engagement occur versus the other group not requiring that. The interpersonal synchrony included discrete trial training to teach specific social behaviors. What did they use back to the basics prompting and reinforcement. It also included greater opportunity to practice joint attention skills. So they made that a focus of their treatment and it increased opportunity to engage in imitation during social interaction.

Michele LaMarch...: 01:08:29 Again, carrying over that imitation skill into a social context as well as an increased opportunity to share positive affect. So imitating what's going on in terms of the facial expression, the attitude that you're seeing from your social partner. The results here were pretty promising. They found that there was increased social engagement through imitation as well as imitated acts using eye contact has increased and that's one of the things that we find is commonly reported as a a deficit in the kids that we work with. They don't engage in eye contact and that is something that's pretty tough to teach. They also demonstrated that there was an increased initiation of joint attention and that's one of the key components that we talked about in joint attention in the beginning. They need to be able to not only respond to bids for joint attention, but also initiate bids for joint attention.

Michele LaMarch...: 01:09:27 And finally it showed an increased in that shared positive affect. So now we're starting to explore and move beyond the concrete things that our kids are doing and hopefully getting ready to, you know, apply all of those concrete imitation skills and being able to observe what a behavior is, mimic that, match the timing and the behavior and then move on to how does that work as we start to teach other's perspective and other theory of mind concepts as well as building their social skill abilities and language functioning. And how do these all connect. The results here were also shown to generalize and they were maintained over a period of time, again, really promising. Let's talk a little bit here about this study, which talks about determinants of engagement. In this case, children who show engagement in educational programs have been shown to have a greater

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Chicago, IL 60611
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likelihood of academic success. So when I indicated earlier that not only do these social skills predict, say social behavior later on, but also their performance and academics and language engagement is determined by both individual and environmental factors. Environmental factors can include teaching strategies that we use, the classroom environment that's presented to us as well as the teachers themselves and the social environments that we have the opportunity to practice these skills in. In this particular study in 2007 they looked at a population of children with autism and down syndrome and they examined specifically goal directed behaviors during structured class time as well as unstructured time. This included compliance where a child engages inappropriate behaviors in class as well as congruence. And this is an activity that's consistent with goals of the class and teacher. So not only are they complying, but they're engaged with what's going on in the moment with the teacher and the rest of their classmates. And that's one of the areas that we often come back to when we talk about autism as a possible deficit. It is where they're not necessarily able to attend to things going on in class or they're easily distracted. That may be something that you hear more often. Here's a great example where now we have two components of their response expectation.

Michele LaMarch...: 01:11:53

Not only are you demonstrating the right behaviors to show that you can participate in class, but you're also paying attention and what you're focusing on is the same in participating and is the same as the rest of the class and the teacher that's being, you know, up at the front and presenting those materials to you. The results of this study show that both populations engage in an equal amount of goal directed behaviors and at least half of the goal directed behaviors for both groups were congruent with a greater amount showing compliance. It was shown that environmental and individual factors impact that engagement. So can you try to think about what some of those environmental factors may be? Go back to your teaching strategies. Were there some of the right teaching strategies employed? Do we need additional teaching strategies or do we need to modify the ones that we're using? What's in the environment that would have helped them you know, achieve higher success rate when we're talking about those

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Chicago, IL 60611
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things as well. So let's talk a little bit about goal directed or rule guided acts. When we're looking at that, we're talking about a behavior that's controlled both by spoken and unspoken rules.

Michele LaMarch...: 01:13:06

A component of complex verbal repertoires and social interaction is a rule guided act in the sense that we know that there are rules that we have to follow and some of them are concrete and some are, you know, some that are more abstract, certainly and their unspoken and rule guided acts or things that are going to control our inhibitions. They're going to help us sustain our attention, accomplish better levels of self control as well as increase appropriate social behaviors on our part as well as our social interactions. What do they look like? Let's give some examples that hopefully you can visualize. It would be a verbally stated antecendent and then behaviors in order to train. Individuals don't need to access consequences in order to result in a behavior change. So it's just based on the rule itself. We're going to comply and demonstrate these behaviors because we know the rule exists not because of a consequence necessarily that we're receiving on the back end.

Michele LaMarch...: 01:14:09

The consequence of the behavior may described certainly, and that may be in and of itself a motivating factor when you really look at the behavior analytic components of that from a behavior analyst perspective that we may be actually engaging in the behavior to avoid the consequence. And that's why we follow those rules because we understand those consequences. Or it could simply be that it's been something that has been trained in the history of reinforcement that we've received all along. Allows us to follow those rules without having to receive reinforcement at such a dense level today. Some rule guided acts again, can be trained using some of our basic strategies. We're looking at reinforcement. I just mentioned, the history of reinforcement that we established when we're trying to teach new skills is going to really make a big difference in whether or not that skill is going to maintain.

Michele LaMarch...: 01:15:02

So we look at not only what schedule of reinforcement are we establishing, but also is the natural environment going to be able to maintain that behavior later on without that reinforcement being provided at that schedule today. Again, I go back often with my staff and the the staff that I actually supervise and mentor. Go back and identify what your

environment provides for you so that you can teach behaviors that will more easily be maintained in that environment when you're not around. Look at your prompting strategies. We've talked a lot so far about shaping in this particular situation, especially when we were talking about just a step before the goal directed behaviors, really structured situations and structured teaching has been a way to accomplish those behaviors. Same thing with rule guided acts. You can probably utilize the structure teaching model and accomplish the same thing.

Michele LaMarch...: 01:16:00 In addition, as you pair your prompting strategies, you can also use observational learning as a model for this as well and look at your modeling that you're providing in the moment in that structured session and or you know, again going to observational learning, watching what their peers do, but also make certain that you go across multiple exemplars. So teach so that you're teaching to generalization and don't just assume that that will occur. All the basic things that we know is behavior analysts so it's not new information but it does tell us that we need to start looking at how do we teach rule guided acts as part of an early social skills repertoire for our toddlers and preschoolers. This study here focused on training simple rules using an intervention that consisted of combining rules with pictures to increase the rule following behavior. Sound familiar? It sounds a lot like perhaps a visual schedule.

Michele LaMarch...: 01:16:58 That would be one example. In order to increase the rule following behavior though specifically they provided reinforcers and those were presented to the kids during the training. Prompt fading procedures were utilized again shaping and removing those prompts gradually. And researchers found that using again the basic ABA principles increased the ability of the children to follow rules overall. Children acquire the ability to generalize their learning in order to follow novel rules on top of that and what do we say about making decisions in terms of priorities of our treatment planning. We have a limited amount of time to work with our kids with autism and we have so many typically skills that we need to teach and because we break them down into such finite components, it can really, if you were to time stamp that and literally take that across, say a timeline of several years, you should be able to identify based on that child's current acquisition rate across specific skills, how

far you can possibly predict that child will be in say three or four or five years.

Michele LaMarch...: 01:18:06 And what we're talking about here is they found a specific procedure intervention using the basics again that have allowed not only the kids to learn how to follow the rules, which is going to be an important component of the social skill building in this age group and it will carry them in the future. But it's generalizing to novel examples that is probably the most effective way of teaching, right? So we don't necessarily have to always teach and then teach to generalize and then teach yet another exemplar and then teach to generalize and so on and so forth. They were able to show that novel presentations of rules were presented and they were able to successfully follow those rule guided acts and, and participate as students. So this is ultimately the type of intervention that we should be focusing on, at least in our belief here in our clinic at Step-by-Step and with Special Learning because it's showing the efficacy and saving time and allowing for other behaviors to occur, occur that have not been trained.

Michele LaMarch...: 01:19:14 Moving on to working memory. All right, let's review here. We've covered joint attention, symbolic play. We've talked about the synchronous engagement, socially synchronous engagement to be specific. We've talked about an affect sharing. We've talked about also goal directed behaviors as well as rule guided acts. Am I forgetting anything? I'm not sure. Let's see. Imitation. That would be another one. The social imitation, so taking that really core concept and expanding it into the social context. Now let's look at working memory. This would be another area that we should look at and focus on in our initial treatment planning with toddlers and preschoolers. What we know, let's cover that. Working memory is the storage and processing of information that allows people to perform complex tasks. During a task information is stored and then utilized in to complete the task over that sequence of task steps. Working memory has been directly related to language development, communication skills, comprehension, as well as learning abilities overall.

Michele LaMarch...: 01:20:22 In addition, working memory has shown to increase academic skills, behavioral and cognitive abilities later on in life, so we've yet identified another area that is a possible predictor to later

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success. Working memory is pretty complex. How are we going to break this down in order to identify tasks perhaps that might build working memory in students with autism? And that's the challenge. Again, when we look at working memory, their deficits in working memory have been related to very specific things in terms of outcomes for persons with disabilities and without disabilities. But poor communication would be one of them. A poor language development. And what we're trying to do with treatment is to really avoid these possibilities in the future. Decreased comprehension abilities. How often do we talk about how we've been able to establish this? Again, really nice repertoire of language and abilities, but comprehension of social situations and abstract let's say examples that are presented to them, visuals and those sorts of things are really pretty difficult.

Michele LaMarch...: 01:21:34

Even possibly auditory comprehension or reading comprehension. And what we're looking at here is that working memory is directly related or linked to it. Poor task performance. Okay. We're trying to also increase our students' ability to attend to a task and increase their duration that they can attend to task as well. Working memory deficits have also been linked to cognitive and flexibility as well as the inability to engage in abstract thought processes. Again, going back to that comprehension here, we're setting up a situation where we know this is already a deficit, a core deficit in autism spectrum disorders such as being able to understand abstract thoughts others' perspective, the whole theory of mind concepts and hidden curriculum, those hidden rules, unspoken rules and the things that we are sort of seeing already that should be learned in an age group of eighteen months all the way maybe to four or five years.

Michele LaMarch...: 01:22:37

And typically in our treatment plan process, at least in my history and in experience, we found that those are things that we don't even start talking about incorporating in our treatment plan until the kids are much, much older. And what the literature is telling us we believe is that we need to start assessing for these things upfront and identify ways to build these abilities right from the beginning because they are predictors to this, you know, later success. Another area that it's linked to is the inability to focus and sustain attention, classroom behavior, the things that we're hoping that we can

get the child prepared for as well as just again going back to performance for, you know, for tasks. If we have inability to focus and we can't sustain our attention, it's going to make it much more difficult for us to perform a task, whether it be in school, in home or in our jobs. Children with autism may experience deficits in working memory, disabling them from performing complex cognitive and social skills.

Michele LaMarch...: 01:23:39

Now also we say that children diagnosed with autism spectrum disorders exhibit several core deficits and one of them features that that's the delay or lack of spoken language. Some individuals are also not able to ever actually develop functional language and remain non-vocal and others will eventually learn how to verbalize and use language functionally. Now in our practice, even if a child is non-vocal, our primary focus again is functional communication training right from the start. We know that there is a direct correlation between the ability to communicate functionally and the decrease in problem behavior occurrence. Researchers has actually suggested that the deficits in verbal working memory and complex information processing may even serve as part of an explanation of the autism spectrum disorder. They've even stated that deficits in this skill area are linked to differences among individuals, language, skill acquisition. So somehow we have to find a way to break this down into its components so that we can start to build this ability within the students that we're serving and providing treatment to.

Michele LaMarch...: 01:24:52

So let's talk about what it is and what it might look like. What is working memory? Again, we mentioned it involves both the storage and processing of information and that is what makes it different from short term memory because then it's going to be used to complete those tasks. You know, as you're doing them, the defining feature is its capacity to temporarily store and manipulate levels of linguistic material. Again, we're getting into some of the deeper areas within the literature, but we'll just breeze over them and focus on how can we apply this in our treatment today. It's influenced by a limited capacity that is linked to attention or to the central executive or what we call the regulatory mechanism. Again, we talk about executive functions, we'll come up with that here in some of our future slides, but we're talking about basically the control center of all of our inhibitions and our ability to self regulate and make

decisions, understand consequences and how those will relate to the decisions that we're going to make so that we can make those better decisions and those sorts of things. But it's really a hard item to define. Deficits in this skill area for children with ASD may also be associated then with deficits in language and learning and their overall social and language and learning competence.

Michele LaMarch...: 01:26:17

Here's some examples of deficits that we may see. Poor performance on a task of non-word repetition tasks versus word likeness tasks. So here they're talking about some things that we may see in maybe an academic arena. Also difficulty recalling specific organized word strings or grammar sequences. Again, these deficits in working memory would be considered associated with learning language. Here's just a little bit of information so we can get our heads wrapped around what really working memory looks like and here's a diagram. Working memory is going to incorporate these three areas here we've got the phonological loop, we've got the central executive and we have visual spatial and what we're talking about here is that they're all interrelated and we talked about how that central executive, the ability to, it's our control center, the ability to understand how to make those decisions and why we make the decisions, consequences, all of those things and regulate as well as plan and organize our time is going to be interrelated with these other areas.

Michele LaMarch...: 01:27:26

Won't again spend too much time on this. It's a little bit outside of the scope of what we'd like the presentation to be because I want you to be able to actually apply it. There are several theories of working memory that can explain differences across memory tasks and that's what we should be looking at. What memory tasks can we implement with the kids that we serve as well as the language ability for those individuals that we are working with. Some of the models include capacity theory. This is where there's a limited number of processing resources available in the working memory for the demands of the task and therefore we have decreased comprehension in poor task performance. So that's one theory. Phonological working memory theory is another one. This is where there's a difficulty in the temporary storage of language information, therefore resulting in poor working memory or the connectionist theory

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and this particular theory language isn't transferred to a separate storage area for accessing function and meaning.

Michele LaMarch...: 01:28:26

So with those three different theories we want to look at again, how are we going to work on specific skills that we'll practice building working memory, or at least show us if the kids that we work with already have this in their repertoire. Here's a good example. This particular study looks at verbal working memory and story retelling. This is something that we can visualize. It's concrete. I can define a task, I can break it down and now I can teach it. So story retelling in school with kids with autism. In this study, they hypothesize that the working memory of the students with autism was inferior to their typically developing peers. Children with developmental disabilities may have a limited storage capacity and verbal working memory, which may account for delays and under development of language skills. But we don't necessarily know that. And so this study analyzed working memory for fifteen kids with autism and then also a typically developing group of children.

Speaker 2: 01:29:24

The parents of the children with autism obviously had to fill out some information. They filled out a questionnaire that allowed the group to screen the child that had autism spectrum disorder. And then the same age peers were used for two different reasons. One to serve as a language aged matched control group as well as access to curriculum with regards to inclusion. What they found was children with autism scored significantly below their typical peers in all working memory tasks. So in that situation, what we want to take a look at is what would be a list of those memory tasks that we can start to implement and start to get repetition and practice and increased you know, performance in for our kids that we're working with. The children with autism also score progressively worse as the task became more difficult. They also scored best on non-word repetition tasks.

Michele LaMarch...: 01:30:22

So this could be a possible explanation and that would be that deficits occur in the final logical storage capacity theory if you're going to take that route. I'm not so concerned about which theory we're following, but I do again want to identify specific examples like what it says here as far as story retelling, that would be a concrete example. The children with autism showed significant impairments in their ability to recall and retell

stories. Not new news to me because I've been doing this for quite some time, but it leads me to what curriculums have we been able to apply and this they theorize maybe related to the theory of mind deficits that we see in people with autism in general.

Michele LaMarch...: 01:31:07 When we talk about working memory activities, the best place to go, and this is where you're going to have to do some research as well on your own, is identifying what would be age appropriate in that sense and identifying how can we work on those skills with the natural environment as we're working with the kids. The hard part about it is most of the examples that we've seen are, at least in our study, bring us to having vocal ability. You know, we need to have a child that we're working with that has vocal ability. In many cases, our toddlers and preschoolers are still learning those skills and so it's difficult to find tasks that don't require that, that also meet this criteria. So we're going to move on, then also to impulsivity and severity of the ASD symptoms on the social skills specifically in the toddler age group.

Michele LaMarch...: 01:31:59 In this particular study, they looked at symptoms of impulsivity and inattention and autism and their impact on the social scalability of the toddlers that are diagnosed with autism or in this case also PDD-NOS. The authors found that having moderate to severe symptoms of both of these conditions, so impulsivity and attention paired with severe symptoms of autism correlated with less social skill development overall. They recommend that programs for toddlers with autism work on attention skills to increase the chance for social skill development longterm and make this part of their early intervention efforts. Of course, we agree with that wholeheartedly and when we look at increasing attention, there's multiple ways that we do it. And how do we accomplish that by using the same strategies that we all know, the basic ABA interventions and procedures that we've been using all along. We look at breaking down tasks and then building them back up over time through the use of errorless learning, using our prompts, shaping the responses that we're looking for, but trying to increase attention overall.

Michele LaMarch...: 01:33:08 And what we're trying to look at also is how does that attention then play into attention in social situations? So it's not just

attention like we've talked about thus far around joint attention skills in that social context. But in this case we're looking at attention overall and attention to task. And being able to engage in an activity for longer durations. So some of those things should come naturally through some of the programs that we're already teaching, such as the play skills that we mentioned or even moving toward that symbolic play that we're trying to incorporate along with joint attention. Communication is kinda tough because communication, although you can work on communication skills constantly throughout the day, it isn't necessarily a task that's going to take a long duration perhaps to complete. So you want to think about some of the things that we work on that would be age-appropriate and that would allow us to offer opportunities to build into that symbolic play area.

Michele LaMarch...: 01:34:05 Things that would be available in their natural environment or in their preschool puzzles, blocks, Legos, the doll house, you know, cars, trucks, any of those areas. Now some of those will not necessarily allow you to have a beginning point, an end point, but they will allow you to transition from some real concrete concepts that you're doing. Say the dollhouse house, for example. I can put the doll in the high chair. Then that's a very concrete example, but now working towards symbolic play that would allow me to transition into that later and try to find ways to transition that to that within this particular activity. And then other examples would be like a puzzle where now I can gradually plan a duration or an increased duration of playing with that activity. Perhaps I use other such as timers in order to gradually increase duration, but it's not necessarily just about duration.

Michele LaMarch...: 01:35:03 Make sure you're not forgetting about quality. That's why we want to maintain those goals and objectives that we talked about earlier with the joint attention, the symbolic play, the social imitation skills and social engagement skills that we're trying to accomplish as well. It doesn't do us much good if all we're doing is looking at increased duration, they're all interconnected. Moving on, we did find a tool that I thought was really interesting and we've been trying to look at it and ways to incorporate some of the components here within our treatment plan so we thought we would share it with you. This is called the social communication assessment for toddlers with

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autism. It was specifically designed by the group who did this study and we want to describe first what does it look like. It's designed to measure verbal and nonverbal communication skills. It also includes early and atypical communication in children with autism spectrum disorders and each act is scored according to its form, its function, its role, and its complexity. The purpose of this study was to describe this particular administration tool and scoring methodology. Also to examine the pattern of developmental change with two samples of kids with PDD-NOS and finally to also examine the aspects of early nonverbal communication which are most strongly associated with later language outcomes.

Michele LaMarch...: 01:36:35

Moving on, we talk about the methods that they applied in their study and what they looked at were two samples of kids ages twenty one to twenty five months with autism spectrum disorders, all at differing severities. And they were assessed using conditional or conventional methods, excuse me, such as the ADI-R, the ADOS, the MacArthur Communication Development Inventory, and other tools. Now, both groups were actually reassessed in approximately twenty two months following their initial assessment in order to compare progress. The specific scatter design or administration tool was administered to all of the children who participated to determine if specific nonverbal abilities were predictive of those language abilities that were seen later on, twenty two months following the first administration of that assessment. The results of the study indicated that the frequency of nonverbal communication acts didn't change between the two groups form complexity, function, and role that the child took did change with time.

Michele LaMarch...: 01:37:46

Now, frequency and function in toddlerhood were positively associated with later language ability. So let's go back to some of the basic concepts that we've along the way as behavior analysts. When we talk about communication skills and socialization and how they're interconnected. In the beginning when we start to teach mand training or functional communication, we talk about not just getting the needs met immediately and establishing the power of communication and the child's understanding that communication is powerful, but we talk about the frequency that we're expecting, the number of occurrences that we're expecting in a day where the child's

going to mand for something. Now, in typical kids, they're not going to just mand for something that they need or they want. They're going to mand for information as well. Such as, you know, what time has dad coming home? Where are we going? Some things like that.

Michele LaMarch...: 01:38:38

Those are much more complex and are not usually targeted right from the start because these other items are tangible. They're more easily prompted as we all know, and so we tend to gravitate towards that first. In addition, those are items that will and have been shown to decrease problem behavior. Let's talk about the frequency. How many mands or how many requests of information and needs and wants does a child usually say in a day? If you were to think about that and you spend some time with, you know, the child's peers in their public classroom, perhaps you'll see that it's constant. Sometimes we're telling kids to, you know, be quiet, take a break, we'll, you know, we'll get back to you. And sometimes they'll repeat themselves and they are also demonstrating a lot of persistence. So the frequency is really much higher than what we're even targeting in our own sessions.

Speaker 2: 01:39:31

One of the things that we do here as, and I'm sure most of you have used this, but if you're brand new, make sure you look into the clickers and you gotta be able to keep track of the frequency of communication or requests that are taking place in order to identify that enough are happening so that you can basically make sure that we're going to have a a positive impact on later development of language. The more opportunities we have, the more likely we can shape, we can build on those opportunities as well to expand that language. And also if you look at this particular example from the assessment tool, they're not just looking at frequency, but they're looking at function. What do we always say in ABA? We're going to focus on functional communication first. So I think that it really aligns well with what this tool and this study was designed to do and tells us again that that particular skill needs to be embedded immediately and focused on along with these other areas because it's going to help with language development, which will ultimately impact their socialization and their ability to participate socially in the classroom later on as well as their academics.

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Michele LaMarch...: 01:40:42

I mean we've seen multiple examples here how it's going to predict future success, really overall. Social acts and comments and initiations were greater predictors than requests and responses. Okay, so there is another area we go back to some of the common skills assessment tools that we may be using in our practice such as the Ables or the BB map. It doesn't stop just at requesting, right? We need to make certain that we're also looking at specific social acts. So go back to some of the ones we've already covered. Joint attention, symbolic play, rule guided acts, goal directed behavior as well as symbolic imitation or social imitation and the sense that it's in that social context. Now we also look at commenting what's the second step or in some cases we're able to actually focus on both the requesting and the commenting simultaneously in our treatment programs.

Michele LaMarch...: 01:41:41

So it leads us to believe that we're really on the right track from a developmental perspective of what we need to be focusing on with the kids that we're working with as it relates to the communication components. Also initiations that indicates that initiations were greater predictors. Okay. Let's think about the different areas that we talked about so far around initiation. While we can initiate for our needs and wants, but we can also show initiation for a bid for joint attention. So those would be two areas that again, are going to reiterate the importance of making sure we're working on those things because they are predictors and greater predictors than just requesting alone or responding alone. There's also a significant association of nonverbal abilities and language. And that was found only with the receptive language in one particular group of this study. When we look at nonverbal ability and language, how can we compare that to some of the skills we've talked about thus far and their importance?

Michele LaMarch...: 01:42:43

Let's talk about an affect sharing nonverbal ability, language, being able to imitate affect sharing and what we see in terms of the abstract facial expressions their attitudes and then also building into that, you know, synchronous engagement repertoire of, you know, our skillsets and making sure that we're combining all of those things, showing that we have a nonverbal understanding we can gesture. So not only can we again bid and initiate those things, but we understand some of the nonverbal cues that are provided to us. And then we

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respond accordingly to that to create that synchronicity that was talked about in terms of interpersonal synchrony. So as we look at this complex topics, but it leads us back to we already have the skill sets in our own repertoires, behavior analysts. And now it's our job to really just analyze, do we have the right programming implemented and prioritize within our treatment plan in and of itself.

Michele LaMarch...: 01:43:45 The association here was also found in receptive and expressive language in the second group. In terms of of future success. Results for both groups, let's talk about that, frequency of social acts and comments were associated with later language. So we talked specifically about social acts and some of the ones that we've covered today commenting another area. Requests were not associated with later language, just to be clear. And then frequency of responsive acts was moderately associated. So in one group it was shown to be significant and in another it was not. Hence the moderate here with later language ability. So we want to make sure we're not ignoring or neglecting the response of acts, but also that that's not the main and priority or the core priority of what we're doing right away. The function of the communication act and the child's role was also very important.

Michele LaMarch...: 01:44:43 So we talk about communication all the time, function, function, function over form. And that's been a shift in our, in our field actually when I first began, even fifteen years ago, we spent a lot of time making sure that a child understood that they needed to say things in a specific, you know, sequence and that they needed to say it in a specific tense and those sorts of things. Not that I was teaching outside tenses, but over time and with some of the studies that you know, have become prominent and utilized with like early language abilities that have been done by a Sunburg and Partington as an example, have demonstrated that it's not the form that's so important and it even ties it back to Skinner's analysis of verbal behavior that it isn't form its function that we need to focus on as it relates from a behavioral perspective.

Michele LaMarch...: 01:45:33 So again, this I think reinforces the things that we already have in our skill repertoire and challenges us to find ways to make sure that we're working on these particular skills, first and foremost, in it's such a high frequency that we can see change

as quickly as possible because all of these components interacting together are going to be predictors for later language ability and success. Results continued as it relates to this study and it shows that a specific predictive association existed between the frequency of that social communicative act and initiations of interactions in the later language and the finding is also consistent with past studies that correlated, what are we saying, joint attention behaviors and later language. So joint attention being really a core area and one of the first things we need to target lots of literature around that now more and more. Now I did say that we would close today with some discussion around executive function deficits.

Michele LaMarch...: 01:46:32 And there are some studies out there specific to executive functions with kids with autism. But there are also more studies that we can tap into as it relates to multiple mental illness or behavior disorders. Some of these being ADHD as well as disruptive behavior disorders. And this particular study looked at executive functioning deficits in these two populations. We think that this is actually very relevant and can be utilized and carried over into our population as well. As you see when you look at what they've learned. Participants included two hundred two children, their ages were three and a half to five and a half years old. They were diagnosed with ADHD disruptive behavior disorders, a combination of both and also included typically developing children. And you can see all the statistics here as well.

Michele LaMarch...: 01:47:30 Children were all evaluated in a single morning session. First two measures of intellectual functioning were administered, followed by an executive functioning task. One of the measures that's recently, I'm not sure how old it is actually, but it's been recently applied in our practice and it's around executive functions called the BRIEF, not I remember the, let's see, what does that stand for? I know the acronym really well, but that is divided into different executive function administrative or assessment and administration tools based on age. So you can actually look at what's, I think it's on Pearson which would be one of the common areas that we can find assessment tools, but you can get some for preschool for elementary, I believe, and then even into older ages. But it gives you an assessment tool to identify through observation and then taking that documentation through your observation and possible

interviews on whether or not you have some deficit areas that you can target in specific areas you can target within the executive function realm.

Michele LaMarch...: 01:48:32 So take a look at that if you aren't familiar with it already. Now, the results here in this study show that preschool children with ADHD were unable to perform well on tasks that required inhibition. That seems to make some common sense when you look at the characteristics of the diagnosis. Children with a co-morbid diagnosis of ADHD and disruptive behavior disorder also performed poorly on inhibition tasks when compared to typically developing children. The children with disruptive behavior disorder perform significantly worse on inhibition related tasks. And after controlling for specific disruptive behavior disorders symptoms and co-morbidity diagnosed children, it was suggested that inhibition related deficits were a symptom of ADHD. The children also showed working memory deficit. So again it connects us back. All of these components early on are going to have an impact in our ability to establish well-used and applied executive function skills.

Michele LaMarch...: 01:49:41 So when we're talking about inhibition executive functions and we, we, I called it kind of our control that is going to control our responses. It's going to help us organize our thoughts, process, what's going on in the moment and make a decision about our responses based on the consequences that we understand. So I'm repeating a little bit about what I've said before, but it also covers that inhibition that we're talking about here in this particular study. Another study here explored the interaction of cognitive style, social skills and problem behavior in preschool children. And in this situation they used a couple of different areas. They looked at social skills domains and they also looked at problem behavior domains, some of which crossover into autism. They did use some specific scales which are listed here that you can take a look at and possibly explore as use in your particular practice that looked at social skills and problem behaviors.

Michele LaMarch...: 01:50:38 And there are lots of other ones that are available to us now, many of them which are free that you can use. And if you'd like some references, we do have those in some of our previous presentations around functional behavior analysis and those areas that we can certainly guide you to. Now the social skills

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domain included social cooperation, social interaction, and social independence. For those of you who have been studying and say, practicing treatment with kids with autism, what are some of the very first play skills that we teach? We start first by looking at do we have social independence and play independence? Can we play with an object on our own occupier downtime, use it appropriately, so forth and so on. Then before we moved to, or we move away from parallel play. We don't just jump right into interaction, but we look at cooperation and what we've learned is in many different studies across lots of different areas is that any of the activities that incorporate cooperation or somebody, two people or more than two people working toward one objective, we have a much higher success rate, whether it be in counseling sessions.

Michele LaMarch...: 01:51:45 When we talk about pure mediated counseling, that was one form of treatment that we talked about in one of our previous presentations. Whether we're talking about just play skills in the classroom and whether we're talking about actual social interaction and discussion here. So cooperation is one of the areas that we like to focus on in our treatment practice and trying to build first and foremost before we move into that interaction where it has all of the complexities of identifying the other person's affect and what their actions are and making decisions upon that. But moving toward now just gaining some of that initial interaction through a cooperative task. So I find it really interesting when we start to dig into all of these details that it does mimic some of the treatment program that you're probably already implementing and didn't realize was so crucial and really had such predictive outcomes in terms of, you know, later life for the kids that we're working with.

Michele LaMarch...: 01:52:45 Some problem behavior domains looked at being self centered and explosiveness as well as attention problems and hyperactivity, antisocial behavior or aggressiveness, social withdrawal, and as well as anxiety and somatic problems. Anxiety is something that we don't typically talk about until the kids are a little bit older and we can really weed through all the different symptoms that we're seeing and identify whether we have both autism and anxiety. So that's one that we didn't see as truly applicable right away, but the rest of them are some things that we can automatically tie to the core deficits of autism. There's also used some different scales here, like the

impulsivity scale for preschoolers and that was a way to assess different children's cognitive styles. And it was used to determine reflective, impulsive cognitive styles of children. Children can show higher scores in the following, either impulsivity, the tendency to give quick answers, spending little time analyzing data or motives and having an increased chance of making mistakes or reflective answers so they're careful. They spend time in analyzing the data and then therefore they make fewer mistakes. So as we're looking at the different activities that we work toward in preschool, we can take a look at some of the the say, not just academic activities but the classroom activities as a whole and break them down and identify if the kids are taking enough time to process their answers. And certain things that we can do are like matching tasks. So we have Legos and we want to be able to build based on the picture that's here. Are they impulsive and are they very quick to move without checking their work or do they take time in order to double check their work? And if they don't, what's our error correction method going to be? And should we look at going back to say errorless learning to prevent those possible errors and then we can fade that over time and apply some error correction later on.

Michele LaMarch...: 01:54:49 So there are specific tasks within the curriculums that you're probably using or the ones that we write here for Special Learning and Step by Step Academy that we can point to that would allow you to analyze whether these these behaviors or cognitive likelihoods or styles are existing within the kids that you work with and then give you some better idea of how you may want to maybe increase activities to work toward that or you're fine and we can move on to other areas. Some results that came out of this study is that there's no significant difference in social independence and significant differences in social interaction and cooperation is reflective of the children who fare better in those areas. Those reflective children, I should say they fare better than the impulsive children. That is pretty much common sense. But I think that again it leads us back to what activities are we going to work on in our treatment program.

Michele LaMarch...: 01:55:49 They also show that there's no significant difference in anxiety or somatic problem. Children groups as well as significant differences in self-centered and explosive or attention problems

and over-reactive or antisocial and aggressive and social withdrawal did exist. Impulsive children did score higher on all of the sub domains that they presented, so what did they get out of that and how does it apply to us? Let's look at their conclusions and see what their recommendations are so that we can again look at what we should change in our treatment protocols. One factor in social skills and behavior problems is that reflective, impulsive, cognitive style, is that something that we can retrain by working on specific tasks that require more of a reflective style of approach and learning and responding or is that something that our kids already have and they have that in their repertoire which will help them in future areas.

Michele LaMarch...: 01:56:47 Reflective children again showed more social cooperation and interaction, so reflective children. Then if we can look at that, we can take those cooperative activities that we work on in our play and our social interactions and maybe increase the, the frequency with which we're practicing those before we move into the interaction. But either way we're able to then again practice the reflective skills and that we're looking for in terms of building in their repertoire. Not surprisingly impulsive children's showed more attention problems, hyperactivity, anti-socialism and aggressiveness. Guidance and counseling we do provide guidance and counseling here at Step-by-Step it's one of our I would say more recent services and we've done a lot of research around is counseling effective with those who have not only autism but possibly even an intellectual disability. There are actually counseling therapies and methods that have been shown to be effective.

Michele LaMarch...: 01:57:48 Now what we're trying to do is identify what age group can we start with and what should those counseling sessions focus on. So what they're talking about here is exactly what we've been employing now for the last probably six months in our own practice, if not a little bit longer, depending upon what age group you're talking about. Our younger groups say the toddler to preschool we've only been applying these these counseling sessions for about, I want to say two months now. And in some areas we're seeing some really good success and we're focusing on improving social skills, but we're breaking it down into this social skills that we've talked about today and getting a lot of that practice and using that counseling session to bring in the parents and offer them training. We model then we offered

them the opportunity to practice that we can provide immediate feedback.

Michele LaMarch...: 01:58:37 We even have those counseling sessions go into the home and then analyze the environment that's around them, identify if any modifications or recommendations for modifications you know, should be made. And then again, practice those skills in that environment. So some of the recommendations that they've come up with are the areas that I believe the literature is already leading us to talk about relationship development theory and those sorts of things. There are some fabulous activities within those different curriculums that do help and you know, increase social relationship building and they can start right at the basics, which will then help us incorporate our joint attention teaching as well as our symbolic play that we're trying to accomplish and even our affect sharing guidance and counseling should also collaborate with the family and teachers to solve behavior problems. Not uncommon for us we do focus on behavior problems and one of our priorities is to see a decrease in that.

Michele LaMarch...: 01:59:35 One of the easiest ways and most important ways to accomplish that decrease is by teaching replacement behaviors. Ones that are functional, not focused on form, but functional communication, functional application in all environments and with all people getting your needs met and those sorts of things so that we have better ways to communicate overall. And we have a foundation to build from, from their recommendations specifically for working with children with autism came out of this and experts that are looking at it and they to assist those with the social deficits as a result of the autism spectrum disorder should be employed to make the most different based make the most different based on research proven methods make the most difference I think is what that's supposed to tell you based on the research proven methods. So again, going back to our basics, we are trained in the principles of behavior and the procedures and now if we can apply those same strategies in these specific areas, we should see a decrease in those social deficits as early on as the toddler and preschool years.

Michele LaMarch...: 02:00:42 Again affecting future outcomes, collaboration with the family and other professionals that are working with the kids. It's also

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critical. We want to have that team approach, make sure we're all on the same page and that they understand how to accomplish the same goals that we're able to utilizing our procedures and principles in order for those kids to reach their best outcome. So some pretty intense information and somewhat detailed. Hopefully you've identified some very specific social skills that you should focus on. There really are only a handful. I think we talked about eight or nine joint attention, symbolic play, socially engaged imitation as well as affect sharing, socially synchronous engagement, rule guided acts, working memory and social communication overall. In addition, we hope that you understand some of the specific tasks that may be incorporated with that probably has a lot more room for expansion.

Michele LaMarch...: 02:01:39

Need to take a look at how to apply with your particular individuals that you work with and then look at how some of those executive functions are going to relate to their ability to control their inhibitions and be able to again, be that control center that will help them process all of those social consequences and interactions so that they can better respond, going back to that synchronicity that we were looking for, behavior matching and all those things. So it all ties together and it's pretty complex. Hopefully you've learned something that you can apply in your practice today. I thank you for attending. There is a code at the bottom that will allow you to complete your continuing education credit certification, and we hope to see you again in part two, where we'll focus on elementary skills in particular.