

This unedited transcript of a SpeechPathology.com webinar is provided in order to facilitate communication accessibility for the viewer and may not be a totally verbatim record of the proceedings. This transcript may contain errors. Copying or distributing this transcript without the express written consent of SpeechPathology.com is strictly prohibited. For any questions, please contact customerservice@SpeechPathology.com.

Back to Basics: Foundations for CAS Intervention Recorded November 19, 2019

Presenter: Joleen R. Fernald, PhD, CCC-SLP, BCS-CL
SpeechPathology.com Course #9086

- [Amy] Once again, welcome to our webinar today, Back to Basics: Foundations for Childhood Apraxia of Speech Intervention. Our presenter today is Dr. Joleen Fernald. She is a board certified specialist in child language and language disorders, and she works with children who have a variety of communication disorder, but she has a special interest in the social emotional development of young children and its impact on their speech and language skills. Joleen has presented nationally on the topics of childhood apraxia of speech and selective mutism. You'll find a few other courses from her in our library, and we always love having her here. So welcome Joleen, I'm gonna turn over the floor to you.

- [Joleen] Thank you so very much. It's a pleasure to be invited back. I always enjoy sharing some of my knowledge with all of the participants. It's so exciting, as I sit here and watch the numbers go up in the participant list, so it's really an honor. So again, thank you so much. There is a link here for my Facebook page if people have additional questions, as well as my email, following the one hour. I know that we're gonna squish a whole lot into this time. So feel free, if you have followup questions for me, to go ahead and reach out either way, and I will do my best to try to get back to you in a timely fashion. We do have four main learning outcomes today. After the course, you will be able to define the term childhood apraxia of speech, you'll be able to describe the theories which contribute to a diagnosis of childhood apraxia of speech, you'll also be able to identify key treatment concepts for working with kids with childhood apraxia of speech, and finally, you should be able to describe two treatment activities for children with CAS. In theory, you'll have a little bit more than just two by the time we're done, but at least two should be part of your outcome following the presentation. So I'm going to zoom through the first bunch of these slides for us as we're getting started, just to make sure that everybody's on the same page. There are multiple childhood speech disorders, and today we are just going to speak about CAS, which is that last one of the list. But disarthria, articulation disorder, and phonological processing disorder also fall within those categories, and the challenge of course is as we get kids

on our caseloads, trying to determine which one of those does our client actually fit into. So hopefully as we go through this initial piece, it will help you start to tease out which of your kids actually meet the criteria for childhood apraxia of speech, and maybe which kids will benefit from alternative intervention models and so on. So ultimately, the overall description of childhood apraxia of speech is that it's a neurological childhood speech sound disorder where the precision and consistency of movements underlying speech are impaired in the absence of neuromuscular deficits. So for example, any abnormal reflexes, abnormal tone and so on.

So CAS might occur as a result of known neurological impairment in association with complex neural disorders of known or unknown origin, or as an idiopathic neurogenic speech sound disorder. I think for most of us, that's the category that many of our kiddos fall. We don't often see CAS as a secondary characteristic from some sort of a brain injury or some sort of neurological insult. Often, we really, truly just don't know where it's coming from. That of course is frustrating for families and caregivers as well. ASHA says that the core impairment in planning and or programming spatiotemporal parameters of movement sequences results in errors in speech sound production and prosody.

So this whole description is the way that ASHA describes CAS and that we can use as our foundation moving forward. Now, over the years, I've been a speech language pathologist for about 25 years, and CAS has shifted dramatically with varying titles and names, and even whether or not it was an SLPs responsibility or within our scope to make the diagnosis of CAS. So when I first started practicing, I would write this really detailed evaluation about my observations regard a child's motor planning and their articulation, their phonemic repertoire and so on. Then I would submit that back to a neurologist, and that neurologist would say, "Yes, Joleen's diagnosis is correct," or Joleen's thoughts, because they couldn't actually give the diagnosis of CAS at the time. The times have definitely changed since then, and we'll talk a little bit more about

us giving that diagnosis based on a really thorough evaluation, but I think it's important for us to understand how the theories of CAS have kind of evolved over these years, and how people have now come to look at apraxia of speech. So there is one theory, which is the linguistic theory, and typically, Shelly Vellerman, those folks there, Strand, Aram, and Nation, those are the folks that typically lean toward that linguistic side, and ultimately that theory says that CAS is a phonologically-based disorder of sound sequencing, substitutions, omissions, inconsistent production of consonants and vowels as well as potentially could have later problems with reading and spelling. The neurological theory, held by Crary and Sussman, that says that CAS has a deficit in neural tissue, that there is some sort of lesion, or again, insult in the brain, that there are neurological soft signs, so that we're observing a child who seems a little bit more clumsy, they may have mild incoordination difficulties, but that we're able to kind of observe those soft signs, looking at a whole child, as well as some sensory integration problems are also noted.

Then we can move over to the motor programming theory, also held by Crary and Sussman. So it sort of evolves a little bit. Where that incoordination of planning or movements of the oral structures for speech activities are observed. We also sort of noticed this groping, struggling for a particular sound. Often you'll observe some sort of asymmetry in the face as the child's trying to get to that particular sound. Then we're seeing those difficulties sequencing oral motor movements. Hopefully throughout these theories, you're starting to see a trend where there is a difficulty sequencing, that oral motor movement to articulate a particular sound. Now what we've sort of done is taken this concept of combining both the motor and the linguistic theory so it's not just a purely motor theory, but we are also combining the linguistic aspects as well. So pure CAS is truly rare, but the comorbid challenges are what really make our treatment much more complex. As you know, most children who show up in your school, in your practice, in your clinic, those kiddos are not just, quote/unquote, having difficulty with oral motor planning, right. We tend to see that they might have difficulty learning to

read, we may see that they're struggling with their gross motor skills and so on. So ultimately, again, the theories have sort of evolved so that it's not one specific area. We're really looking much more at a holistic perspective of the child, which is my preference as well. So again, some of those other problems associated with CAS may be expressive and receptive language issues.

Some kids demonstrate some academic difficulties in the areas of reading, writing, spelling, and so on. We also may see those gross motor problems, motor skill deficits like walking or running, as well as fine motor difficulties, so things with smaller motor skills being required like writing or cutting with scissors, being able to pick up our food with our fingers and so on, or using silverware. Those kinds of motor skill challenges may be observed, as well as chewing and swallowing difficulties. So again, if you've got a kiddo who comes in and presents with not only challenges with the oral component, right, the verbal aspect of apraxia of speech, and you combine that with all of these other challenges, it can make for a pretty frustrating situation for this kiddo, and then caregivers are really working hard to try to figure out how do we intervene and how do we support this child to be able to help make them more successful. So I thought that we'd start off today by showing a little video clip of a little guy named Nick that I worked with years ago.

This is actually a video of a co-treatment session with both PT and OT, so there were three of us. I'm holding the video camera, and Nick's dad is next to me, and then there is a physical therapist as well as the occupational therapist that are supporting Nick on the swing. So I saw Nick for his speech and language challenges, so he also has a diagnosis on the autism spectrum, and then the PT and the OT were working with him on his sensory and his motor challenges. So let's take a look at this little video clip, and then we'll talk a little bit about it.

- When you run you can bring your car. You wanna get on the swing? Now hold it, good choice. I'll hold it, I'm holding it.

- Hold it for a second.

- I'm holding it, so you got it? You miss that one too?

- Do you still have your car on there?

- Should we go too?

- What happened to your car?

- Do you want it back?

- Back.

- Do you want it back? Here's your car.

- Well done.

- [Joleen] well done, car.

- Okay, good, you'll be okay.

- He's done with the swing.

- I think he said he's all done with the swing.

- Oh, are you all done with the swing?

- All done, swing.

- [All] All done swing.

- Okay. Yeah, you go down to me.

- [Dad] Is that the same one, the one from before? The same swing that you've always had?

- Yeah.

- Yeah.

- [Dad] It seems more wobbly.

- [Woman] She's got it just on one.

- You got it?

- Got it?

- [Mom] That adds another element.

- [Dad] That's why it seems more wobbly, I think that's what's throwing him wrong.

- He did it to me, he's so great with this.

- You can put your hands down, too. That's one way to do it.

- Down, stop.

- There we go. Maybe turn your body around.

- Go.

- Good choice Nick.

- I wanna stop.

- [Joleen] You wanna stop?

- Come on.

- Down.

- Down. Nice job.

- [Joleen] Okay, we could head back to the PowerPoint. So what I really want you to take away from that video is watching Nick really struggle with trying to get down from the top part of the swing, and I also want you to observe what the OT and the PT did or did not do. What I love about these two gals, they're very skilled clinicians, but they helped me in understanding that if we do everything for the kids, then they don't learn that motor planning, they don't learn that process of being able to figure out where to put his legs or put his feet or turn his body and so on. So this is a kiddo who's not only learning where his body is in space and how to maneuver it on and off of that swing. In Nick's perspective, I'm pretty sure he felt like he was 500 feet across, above the floor,

and you see how tentatively he puts the leg down and turns his body and so on. So our kiddos with severe motor planning challenges in the oral and verbal aspects also may be struggling with this gross motor planning, and so so much that we as SLPs are doing can help support that body piece as well. Now, I will just share this, this little tidbit as a little helpful tool, that I find if we can give a kiddo much more physical support, so if you've got a child who is struggling with this gross motor planning difficulty that if we give them some more physical support, like sitting in a beanbag, for example, while we're doing some more of the oral and verbal work, then that will help support that child in being much more successful so that they can focus more on the verbal output. Because if they are trying too hard and putting so much effort into trying to stay within their environment or stay upright or plan where their body's going, they're not going to be able to, as easily access their motor articulators. So just something to consider as far as positioning, posture, placement.

Oftentimes we'll work with kids at a table or, and then their feet are dangling off and so on. So really giving them that nice, strong body support will help reduce some of that effort that the child needs to focus on so that they can get back to attending to what you're doing, and what you're working on. So how common is CAS? Now, many of you have probably heard over the years that there seems to be this increase in prevalence, and it's getting to be, you know, every child is getting the diagnosis left and right, but really, ultimately, the research is still very inconclusive, and the reason is that there's still poor diagnostic criteria. We still don't really know exactly what the specific diagnostic criteria is, and then also, because it is fairly rare, there are smaller sample sizes. So trying to find purely, you know, kids who are diagnosed with CAS for a research study is also a challenge. So there's some research here that I've just given you to kind of get a sense of how common it is, or actually isn't. But ultimately, it is more common in boys than girls, and the research does seem fairly consistent with that. And that often, there is a comorbidity along with various symptom, syndromes, sorry. So those are listed here. But finally, I think it's important for us to mention that it

is not any more common in kids on the autism spectrum than it is with any other diagnosis or any other lack of diagnosis. So for a while, it seemed like it was, the two went hand in hand. You had a child with a diagnosis of autism, and then you also the comorbid diagnosis of CAS. But the literature is really saying that it's truly not any more common in those kids with autism. So just something to kind of consider for those of us who have fairly high populations of autistic kids on our caseload.

So for me, when I think about intervention, I feel really confident that I have to have a strong assessment, so that I can differentially diagnose and make sure that I am treating with the most evidence-based perspective that I can, and with the most information that I have available. So as I mentioned, the criteria for diagnosis is still a little inconsistent. However, there does seem to be these three segmental and supersegmental features that most people agree on, that it has to do with the planning and programming of those movements for speech. So ultimately, we have inconsistent errors on consonants and vowels in repeated productions of syllables or words, lengthened and disrupted coarticulatory transitions between sounds and syllables, and then inappropriate prosody, especially in the realization of lexical or phrasal stress, so again, that rate and rhythm of how are words sound.

If you've had kids with CAS on your caseloads, you absolutely know what those kiddos sound like, because they do sound drastically different from our other kiddos with articulation or phonological disorders. One of the other checklists, if you will, that I've used to try to differentially diagnose and make sure that I feel really confident and sure that a child meets the criteria for CAS is Strand's 10-Point Checklist, and I've listed all of the different 10 points here. But ultimately, her diagnostic criteria for CAS is that the child meets at least four out of 10, this checklist, over three different tasks, so that while you're doing your evaluation, you would kind of administer three different opportunities for hearing that child speak or repeat words and so on, and that the child is demonstrating at least four out of the 10 of these over the three trials that you

provide. So hopefully that will give you a little bit more information about that differential diagnosis and feel much more confident in making that diagnosis. When I write up my evaluation, I have all of these different sections, and so I'm not gonna go through every single one, but ultimately, I look at their overall sound system, which makes perfect sense. If it's a sound, speech sound disorder, then we wanna look at the sound system. So here we're going to consider their phonemic repertoire, and for me, I actually prefer the Arizona Articulation Proficiency Scale over some other articulation assessments, and there's a number of reasons why.

But for me, I like the boy versus girl data, and I also like that it starts a little younger than Goldman Frisdoe and some of the other assessments. So for me I like it. It has vocalic R included, it also has vowels, and you get an intelligibility score to kind of get a sense overall that's a little bit more, I find a little bit more objective that just saying it's easy to understand that child or it's not easy to understand them and so on. So anyway, that's, I am not employed by WPS at all, I just happen to really like that assessment.

I also have used the SCAT for a little bit more in depth articulation assessment so that I can really get a better sense, and that often is for older kids. We'll talk a little bit about those tough to assess kids in just a second, but for a child who is a little bit older and has a little bit more language and vocabulary, then I may be able to use the SCAT to give me a little bit more information about in what kind of context that child is producing or misproducing certain sounds. It's important to use an overall speech sample as well as controlled phrases, and then The Dynamic Evaluation of Motor Speech Skills is here in the link, and you can just Google it and take a look. There's some really great research articles about it as well, but Strand published it back in about 2012, and it's really great for our younger kids who are severe, with very, a very limited phonemic repertoire. So you're still looking and assessing those motor speech skills, but it does really help narrow down for those kind of difficult kids that just have

much less variability in what they are saying or producing. There's not always a lot of babbling and so on. So it really looks at the degree of the motor impairment, and how that may be impacting the child's speech. Then I look at syllable sequencing, I look at the supersegmental patterns. You'll notice that a lot of these are in Strand's list, the 10 Checklist, so that it gives you that information you're looking at the prosody, you're look at the rate rhythm of speech, you're looking at modulation. Do you have a kiddo who's always too loud, or one that can't seem to consistently have a volume? They're either having a part of a conversation and they get really quiet, and then they get really loud all of a sudden, and then they get sort of quiet. Does it seem like there's a challenge there, so that you're able to assess each of these areas. So I put all of that into my evaluation. So as I mentioned just a minute ago, the DEMSS is really helpful for those younger kids who really struggle with traditional standardized assessments. It's great for people who are considered severely impaired and have that limited phonemic repertoire that we were just talking about, and then it does help with determining that motor impairment overall.

So once you have this really broad scope and this really helpful way of organizing your thoughts, and you've given this child the diagnosis of apraxia of speech, I find that it's at that point that I have to have the conversation with the parent to help them understand and realize where that's coming from. So I love to use analogies, and I'm sure that this is not unique to me, I just don't remember where I heard it, but a lot of families seems to respond really nicely to these two little analogies that I have. So the first one has to do with the Atari system. Now, some of you are probably younger than I am, but back in my childhood, the Atari was similar to the Nintendo or Xbox, you know, it was a video gaming system, but there were wires and cords that went from a joystick to the television. And when you move that joystick, then your character on the screen, back then it was really fascinating, it was Pong, basically, and you would just hit this ball back and forth. But you were able to move back and forth. You could have Frogger, pick whatever video game you like if you remember back then. So I describe

that joystick as being the brain, and that all of the synapses and all of the wiring that comes down from the joystick into the TV is what comes down through our brain into our articulators, into our mouth, into our tongue, into our lips and so on. So if there's a kink in the wiring, remember I mentioned that most of the kids that you're working with have that idiopathic basis for their apraxia that we really truly don't know exactly what's going on in there, that there's no specific insult. It helps for parents to understand that there's just this little kink in the wiring, that there's just a little bump in the road.

So what we need to do is basically rewire and go around outside of that little kink in the wiring or around that little bump. So to demonstrate that or to again, give another analogy for that, I talk about hiking up a mountain for the first time. So many parents will say to me, "Well, he can say, 'I love you Mom' sometimes, "but he can't say it all the time, "and if I tell him to say, 'I love you Mom,' "he can't say it right then," that on demand, right, that's challenged for our kiddos. So what I describe is, you know, that kink in the wiring, sometimes it gets through and sometimes it doesn't. So that helps parents understand where that success comes from and then why it's challenging at other times. But then the other part of the analogy is us starting to rewire or work on the motor programming aspect of our intervention. That would be like climbing up a mountain that you've never, ever climbed before.

So the first time that you go to climb up that mountain, it's going to be very treacherous, it's going to be very rocky, it's going to be very, very exhausting, and you're not gonna love doing it. You're not going to love practicing and doing it over and over and over again to climb up that hill. The first time you climb up the mountain, the grass is tall and it's, you're cutting through to basically cut down an entirely new road, an entirely new pathway to get to the top of the mountain, also known as getting to that particular speech sound or particular sequence of motor movements. Now, after you've practicing it 15 times, that grass starts to get trampled down, and that pathway

starts to broaden, and that makes it a little bit easier the next time it's time for you to climb that mountain, and the next time it's time for you to access that particular speech sound. So over time, again, mass repetition, and we'll talk a little bit about that in a minute, over and over and over again you're trampling down that grass, and it's going to make it much more accessible for you to just go right around that bump in the road and go straight to the sound on demand, when you need it, you can pull it out of your brain as soon as you need to access it. So when you're working with parents, especially parents of young children that might be getting this diagnosis for the very first time, hopefully you can use some iteration of that particular analogy, whatever works for you. But for me, those are the two things that I often share, and parents have that aha moment, caregivers have that, oh, I get it, or even teachers start to understand it a little bit better when they say, "Well, he was able to answer me yesterday, "how come he can't say X, Y, or Z today?" That's the reasoning behind it. So hopefully that will help support your dialogue with caregivers and educators and others that you may come in contact with when you're trying to describe apraxia.

Okay, back to treatment. We've got a good, solid intervention, or assessment, so now we have to plan our intervention. Tricia McCabe came up with these kind of yellow light, green light types of intervention. She kind of grouped them and categorized them, and I love how she did that. So what she says is yellow light interventions are things that a lot of people are talking about, but there's not as much evidence behind it. So the linguistic and motor programming approaches that we will talk about in a minute, those have a lot more evidence-base behind it, a lot more research behind it. However, these are some intervention techniques that a lot of people have had success with and find that they are very helpful anecdotally, in that they still are very promising for many of our kids. So PROMPT is one of them, and that is where you can physiologically help manipulate and maneuver those various sounds in the phonemic repertoire to help that child produce, and again, make those connections between that motor plan and their articulators. Melodic Intonation Therapy, and then I just put in Kaufman Cards here, so

that the idea is that, again, a structured, sequenced hierarchy of really addressing the motor planning, I think can play a huge role, and that's really the part of the model that I use in my interventions as well. So those, remember, we talking about those theories, the Linguistic Theory, the Motor Programming and Motor Approach, so the Linguistic Approaches to treatment include focusing on linguistic and phonological aspects of speech and they emphasize the importance of functional communication, and this is where, I think it's super important when we start talking about the non-speech oral motor exercises, right, stick your tongue out, wiggle your tongue, you know, lift your tongue to your nose, try to touch your nose to your chin, outside of the context of an actual speech activity, those, the research is pretty clear that those really truly don't play a huge role in making progress for our functional use of communication.

So keep that in mind whenever you are providing your treatment to your kiddos. So the Cycles Approach that we use from a phonological basis, right, you have mat, with the a T at the end, and map with a P at the end, and you are providing those two, and the child says mat, so you hand them the card that says mat with a T, but they really wanted map with a P, and they start to have that heightened awareness, a little bit more metacognition, a little bit more awareness that they're supposed to say it with a P at the end, that's an example of Cycles Approach, as well as the Integrated Phonological Awareness Approach, and I'm not personally as familiar with that one, the but the idea, again, is looking at the whole phonological system and focusing a little bit more on patterns and functional communication within that.

The Motor Programming Approach is, I would say, what has the most evidence base behind it and that most folks are using. So this really starts to distinguish between performance and learning, where performance is the accuracy of what a child can do within our session, right, in our speech therapy session, but learning, motor learning, has to do with the ability to transfer what they've learned, that transfer of knowledge outside of that mass repetition. So is that child starting to use that outside of your

therapy session? There are three Motor Programming intervention models. The DTTC is one, the Nufield Dyspraxia Program is another one, and then Rapid Syllable Transitions is the third. These are the most common, most popular. I put the link in there for ReST because it's actually a free program that you can go ahead and learn. You can just go ahead and click on it and be able to go through the process. If you just Google it, it will pop up as well. But it's a really great structured hierarchy of again, working through that motor programming aspect of our speech intervention for motor planning.

Okay, so regardless of which one of those models, philosophies, a lot of people kind of pick and choose and blend a few of them together depending on their kiddos, but regardless of which one of those you choose, there are certain conditions of practice that are really important for you to consider as you move forward with your kiddos. So the first is thinking about randomized versus blocked practice. Blocked practice has to do with looking at one target that you practice at a time. It's really great when the child's first learning a new skill, again, you're first adding a specific phoneme to their repertoire, you're first practicing a consonant vowel combination or a vowel consonant combination so that you need a lot of mass practice, a lot of repetition in order to be successful.

Randomized practice is where you might have more than one target, but you're practicing that within the same activity. So sometimes, I might be playing Candy Land, and we are working on all the vowels at the same time. So red might be for A, purple might be for E, yellow might be for I, and so on. I always have a little code there so I remember. But then whatever we land on, the child says five As, or you know, five Es, and so on. That would be randomized practice. This tends to lead to more generalization of skills. So again, if I'm first teaching A, which, by the way, is two sounds, right, it's I, E, or I, I mean is two sounds, I, E, then I'm gonna do more of a blocked session, where we're mass practicing, Ah, E, Ah, E, Ah, E, Aye, Aye and

smooshing that together so that the child can say I, and then once they're confident with I, and we know that they've got Ah and E, so I might practice Ah, E, and I within playing that Candy Land game so that the child's getting an opportunity to basically overlearn and practice all three of those different vowels in one activity. So let's watch a little video of blocked practice. This is my little buddy Calvin. He, I can't remember how old he was here. I feel like he was about four. Again, this was a little while ago, and one of the things that I love to do is incorporate a lot of physical activities in whatever I'm doing. I find that kids will attend a little bit longer and they'll stick with me a little bit longer. So we are actually using a scooter board here for Calvin. So take a peek at this.

- Okay, let's try A.

- A.

- Ayn.

- Ayn.

- Ayn.

- Ayn.

- Ayn.

- Ayn.

- Good job. Good job.

- [Joleen] Okay, so as Calvin's looking at the vowel turtles, he is practicing the vowel and the consonant there, and he's able to then kind of have this fun sensory experience zooming down the little ramp there. So that is blocked practice, where he's starting to coordinate those two sounds, again, the vowel and the consonant together. All right, can we slip back to the PowerPoint please? Perfect. Okay so now, let's take a look at a more random practice. This is Nick that you all saw at the very beginning of the presentation. He's the same kiddo who was on the swing and working on his gross motor skills. So here you're gonna notice that I have him very supported in a cube chair with a tray, and that he's able to, we're working on all of the different consonants, and anyway, so you'll be able to see him working on a few targets in our session.

- Ready, can you do this one, mm?

- Mm.

- Nn.

- Nn.

- Oh.

- Oh.

- Good job. Ch.

- Ch, ch, ch.

- Oh.

- Oh.

- Puh.

- Puh, puh, puh.

- Oh.

- Oh.

- Guh.

- Gee, Gee.

- Oh.

- Oh.

- Er. Oh.

- Oh.

- Kuh.

- Tuh, tuh.

- Oh.

- Oh.

- We can't do any of the backside. Ff. Ff. Ff. This one is the ff.

- [Man] You can do it.

- Oh.

- Oh.

- Okay. Geh.

- Geh.

- Oh.

- Oh.

- Duh.

- D, D.

- Oh.

- Oh.

- Ha. Ha. Oh.

- Oh.

- Oh.

- Oh.

- Oh.

- Oh.

- Sh. Oh.

- Oh.

- Tuh.

- Tuh.

- Oh.

- Oh.

- Oops, skipped one.

- Ss.

- Ss.

- Oh.

- Oh.

- Wa.

- Wa, wa, wa,.

- Oh.

- Oh.

- Toe.

- Toe.

- [Joleen] Okay, so that's Nick, seeing him nice and supported. He's not having to worry so much about where his body is in space, although you saw part of it in there where he sort of drifts away, and so we needed to kind of pull him back gently and help him to kind of refocus back onto the book and the binder. So the pictures in that binder are just, they're pictures with letters next to them, things like, you know, frog is a Guh, and it's from an old, old book. I don't think it's in publication anymore that was called "Building Blocks to Communication", I believe was the name of the book. It listed all the different consonants, which was great, as well as, you know, Sh, Th, and so on, so that we were able to do that all the way through. So the vowel cards are the Vowel Turtles from "Easy Does it For Apraxia", so they're the Vowel Turtles, and I just laminate them and then the kids start to learn kind of the orange, O, is O, the long O, and so on. So again, here you're seeing him go from consonant to vowel where you saw Calvin going vowel consonant, but Calvin was just working on aim, that was the only, the only pattern that he was working on. Ultimately Nick here is working on all of the consonants plus the vowel O together. Let's head back over to the PowerPoint. So then when we kind of have a better sense of blocked versus random practice,

randomized practice, then we also want to look at mass versus distributed practice. Now, this is important because so many of us are trying to figure out on our caseloads whether or not we need to have, you know, three short sessions, do we need five really short, short sessions, can we do this in an hour a week, do we need two half hours, and so on, right. That's the, our whole world, especially with large caseloads in the educational setting. So when we're thinking about the length of a session as well as the time in between sessions, mass practice means that you are doing one big mass practice. That's exactly what it means. So for example, one 60 minute session per week. Then if you think the term distributed practice, that is distributing that one hour over the course of smaller chunks.

So it might be three 20 minute sessions over the course of the week, or you know, maybe it's five minutes daily or 10 minutes daily so that you get to somewhere around your hour for a whole week, and so on. The distributed practice has, in some research, shown to lead to greater learning. Remember, we don't just want performance, but we want learning where it generalizes outside of our session, and that makes sense, in my opinion, because you're practicing these skills multiple times. If you have a family member or a caregiver who is really open to making sure that they practice a lot at home, then it may be fine for you to do one big mass practice, and then you're building in language, sensory motor, and so on, some other goals in there.

In Nick's case, where he had the autism challenges, so we had a lot of social pragmatic issues there, and even just staying engaged with me. So we would spend probably 20 to 30 minutes working on engagement, and then we'd do 10 to 15 minutes on language, and then we'd do 10 to 15 minutes on the speech portion. So I would kind of break it up depending on where he was regulation-wise and so on. So for him, having a longer session, I actually saw him three times a week for one hour each time. His insurance was amazing. So we were able to get that done multiple times, and then his parents would practice at home as well. The other piece that you wanna think

about is variability, so that means practicing targets in different settings. So again, having a child practice with me in my clinical setting is great, but if the parents are able to practice at home and then their teacher is able to practice at school, and then maybe Grandma and Grandpa practice in the car after being picked up from gymnastics or whatever, that is going to help increase much more generalization across those different environments. So it's varying the different, the word positions as well as physical locale. So this is a video of a little gal named Annie, and in my therapy setting in New England, before I relocated, in New England, we had a big, long hallway, and so I was able to take the kids out and use the tricycle and scooters and that kind of stuff out in the hallway. So this is Annie with her speech on her bicycle.

- Buh.

- You're right. A.

- A.

- Sh.

- Sh.

- Good job, all right, we gotta go back over, can you get that one? Peddle hard up that ramp. How about this one right here?

- Huh?

- A.

- A.

- Ff.

- Ff.

- Bite on that bottom lip. That's it, A.

- A.

- Good job. Okay. Let's head back over to the PowerPoint, thanks. So that's Annie, and you can see that she's even struggling a little bit with getting her feet up onto the pedals and kind of the motor aspect. So for her, I've upped that challenge a little bit so that we're using that, the variability, but we're focusing on the A with a different consonant afterward, and building that motor plan, and again, looking at her whole gross motor profile as well. The likelihood of her now being successful when she goes out on the playground is going to increase because she's now able to practice a little bit more of that overall motor component that then she's taking out into her play area with her peers and so on.

So you noticed in that video, or at least hopefully you noticed that that were a number of different prompts that I used. So some useful prompts, and again, this is probably something you all probably know and perhaps have used, but I'm using visuals. The Vowel Turtles, like I mentioned, were from "Easy Does it for Apraxia", and then the consonant pictures are from that "Building Blocks to Communication". But again, you can use any of Weber's, you know, the Articulation Consonants or whatever you wanna use, Kaufman cards are great visuals as well. But some sort of a visual prompt to help the child get a sense of, okay, this is where I need to get my joystick and get that connection going. Physical prompts: you heard me say, "Place your finger on the bottom lip "and push to facilitate the F production." That's not how I said it to her, but

you saw me model it, with me physically doing it, and then helped her to successfully do it with my verbal words. So, "Bite down on your bottom lip and blow," was my verbal prompt so that she could be more successful with that information. You also heard me providing some feedback in that video. So I shared some feedback like, "Good job," if you noticed that, I said, "Good job," and then I helped to guide her with the actual placement information. So extrinsic feedback is information and critique from the clinician regarding the client's task performance, and intrinsic feedback is that client's own assessment of performance, which helps develop self-monitoring and awareness. So I provided extrinsic feedback by sharing, "Good job," you know, "Well done," and kind of giving her this comment about, you know, right or wrong, which we're gonna talk about with knowledge versus results. So I gave her more information about the knowledge of how to be successful when I told her about moving, you know, pushing her lip underneath.

And then when I said, "Good job," I provided results. I just told her, "Yes, it was right, "now, it wasn't right." You noticed that when she didn't quite get it correct, I didn't say, "Oh my gosh, that as horrible and wrong, "and don't ever do it that way again," right? I just helped to shape it and correct it gently and kind of moved her along in that sense. So again, providing knowledge versus results and then extrinsic versus intrinsic feedback is going to be really helpful for your kiddos as they progress. So what else do we do for our really severe kids? I feel that I would be remiss to not incorporate Augmentative and Alternative Communication here, because some of my kiddos, while they're practicing their speech sounds and their motor movements, and while they're working so, so hard on all of that, they still need a way to communicate and of course decrease frustration over the inability to communicate. So I just put a few things here: Picture Exchange, PECS, many people are familiar with PECS, or using a speech generating device, and I put a few of the common software programs that are here that can be utilized. Feel free to utilize your AAC experts in each of these. But for me, those are really, really helpful. And then also the use of literature. Don't be afraid to use

literature and toys to help increase linguistic skills. I use Brown Bear, Brown Bear a lot because of its repetition, and so it can also be really helpful for concepts, again, most of you know this. But this is a little video clip of a kiddo, another kiddo named Nick who was using, at the time, it was a Vantage Light, I believe, on his Augmentative System, and were not gonna watch, it's five and a half minutes long, we're not gonna watch the whole thing. But I just want you to get a sense of him using it for his communication, and then you're going to hear him actually speaking. So I'll just kind of put my own plug in that AAC does not deter from progress in the child's ability to produce speech, and that in fact, it actually helps to support it, and there's a lot of research around it being able to support that extra expressive communication. So this is a little clip of Nick, and he's talking about Brown Bear, Brown Bear, and all the different animals in Brown Bear.

- Horse.

- Oh, you're gonna the horse? Cool, let's go up onto here.

- Lion!

- [Joleen] A lion? I don't like lions, they're scary!

- [Computer] It's horse.

- [Joleen] It is horse, hi horse, I'm Brown Bear.

- [Nick] Go on horse.

- [Joleen] Go on the horse?

- [Nick] Yeah.

- [Joleen] Okay, mm, I'm hungry. What's there to eat around here? Brown Bear, what should I eat?

- [Computer] It's horse.

- [Joleen] I can't eat myself.

- [Computer] New Hampshire, no less than 150, greater than. Less than 50, greater than. Less than 50, greater than. Less than 200, greater than.

- Can I see something?

- Give.

- [Computer] I need more work.

- [Joleen] You need more work, really?

- I need more work.

- I can get you more.

- [Nick] No, choo.

- [Nick] Phew.

- [Joleen] Phew, that is a lot of words, huh. You just wanted to say neigh, but you pushed a few buttons.

- [Computer] I want.

- [Joleen] Which one?

- Dog.

- You want the dog? Oh, I have two dogs, woof woof.

- [Nick] Neigh!

- [Joleen] You want this dog?

- Yeah.

- Oh, okay. woof woof woof woof woof woof woof, woof woof woof woof woof woof woof. I'm hungry Nick, what can I eat? Horse, Horse, I'm hungry.

- [Nick] Brown Bear ride the horse.

- [Joleen] What?

- [Nick] Brown Bear ride the horse.

- [Woman] Brown Bear ride the horse.

- [Joleen] Oh, Brown Bear is on the horse?

- [Nick] Yeah.

- Oh. Giddy-up! All right, I could watch him all afternoon he's so adorable. But you can tell that I didn't understand when he was saying, "Brown Bear Ride the Horse." And so the device would be easy to help him repair that, to decrease frustration. You can imagine him in a classroom setting where he has so much more to share and then just can't get that out with his peers. All right, let's head back over. So again, along with that Brown Bear, I use PowerPoint to create lots of repetitive stories and personalized books for the kids to be able to practice with.

So Nick, who, this is our little guy that was at the beginning, and then the one that was in the chair doing the consonants with the vowels with me. So I created a, basically a book, and this is just one page out of it, where I say, "Nick, Nick, what do you see?" "I see Mom looking at me." So we would turn the page and see Mom, you know, on the page just like Brown Bear, Brown Bear, but this was personalized to Mom, Dad, Nick, and his grandparents, what he called his grandparents, so that he could have that repetition of being able to practice something that was super meaningful to him, and something that was really connecting that functional communication for him. So that we would practice, again, the sound sequencing of all of those words in our sessions, but then he could practice that variability and that randomized practice at home. So that is another little tool that you might be able to use. So dosage and session format we talked a little bit about.

Again, intense and frequent is super important, multiple repetitions and repeated opportunities for practice. Frequency, again, ranging from three to five individual speech therapy sessions per week. So remember, we talked about that distributed practice. Younger kids with shorter attention spans, they may increase their tiredness levels, so it may be more beneficial to have shorter, more frequent sessions instead of,

again, big mass, longer sessions, and then clinical and home practice ultimately those best outcomes for our kiddos. So, when we look at putting it all together, let's shift over to the video, this is a kiddo who actually was, in the grand scheme of things, his apraxia was actually not super severe. He had a lot of phonemes and could not, he's really struggled with being able to coordinate everything together. This video was taken, actually almost towards the end of therapy, and I actually took the video specifically to share kind of what it looks like to go through his book of repetition with those sounds. We used it kind of as a, as a warmup for many of his sessions moving forward. So let's take a peak at Ryan now.

- Vv.

- Vv.

- Oh.

- Oh.

- Mm.

- Mm.

- Oh.

- Mm.

- Nope, oh.

- Oh.

- Buh.

- Muh.

- Good job. Oh.

- Oh.

- Oh.

- Wah.

- Good try. Oh. First do O, O.

- Oh.

- Oh, oh.

- Oh.

- Yep.

- Yeah.

- On. Ch, O.

- Ch.

- Nope, start with this first, O.

- O, Ch, ah.

- Good job. Oh.

- Bah bah.

- First do O.

- O.

- Yeah.

- Buh buh.

- Good job. Okay, so you can kind of get a sense, I'm giving him some knowledge of his results there. We're doing some randomized practice where we're using the same vowel at the beginning but varying the consonant at the end, and we're not varying our setting at this point, or really the type of words at this level. He's not quite ready to build that up into the next level where we're into phrases and sentences and so on. Let's shift back over and kind of just highlight our final key take homes before we all finish up here. So the acronym, and again, this is not unique to me. I think this came from Apraxia Kids, but it is, honestly, I'm not sure. I looked and I could not find where it came from. But always think about a child's attention, cognition, the amount of effort that it's going to take to put forth, as well as the level of motivation, and then this content frame that we have here, you can provide an old activity with another old activity in the same session, a new activity with an old, an old and a new, but you do not wanna do a new, new. So imagine there's a little X over there, that was my poor

PowerPoint skills there. So take, here, let me see if I can make myself, I don't know if I can make it draw, nope, I clearly don't have those skills. So put a little X in that new, new. Again, should be old old, new old, old new, but not new new in that level there. Then finally over here, there are different programs on the market, but not single program is going to work for every child. Again, I feel pretty confident that you all know this. Always consider development, that the job of a child is to play and therapy can be very fun, even if it's a lot of hard work, and that every child is an individual, and therefore an individual profile should be considered for each child and how you treat that child for whatever method and model of intervention that you're going to utilize. So, I know that I used literally every minute of my time here, but I'm happy to stay if folks have additional questions.

- [Amy] Thank you so much, Joleen, that was excellent. I wanted to let our participants know if you need to go, you are able to log out now and you'll get credit for having been here the full time, but if you wanna stick around a couple minutes for questions, and if anybody has questions, you can go ahead and type it in the Q&A pod real quick. See any questions come in. Here we go, here's a couple.

- They're all coming in?

- [Amy] All right, so someone is asking, how do you perform speech and AAC therapy at the same time? Do you have one day for each, or do you do both within a session, or how do you address those?

- [Joleen] Great question. I typically build it in. I use a lot of aided language stimulation where the AAC device is right there and I do a core word per week. That would be a whole another presentation, and there may actually already be something that speechpathology.com offers already. But using that core word each week, again, I use a lot of literature and so on, so we push that, but then I try, as much as I can, to

combine that with whatever their speech word is or speech construct is. So if, again, if I'm working, you know, let's say go, we may be working on the G and the O, or it might even just be O depending on the child's level. So I've usually combined both into one session, because again, I want them to have functional access to functional communication with the device.

- [Amy] All right, very good. Let's see, this is, this, excuse me, this suspected diagnosis in young children can be a little scary for parents, and do you have any tips for how to approach it with parents?

- [Joleen] Ooh, also a really good, so I'm not a huge lover of diagnoses in general. I prefer, I use the DIR Floortime Model as a philosophical framework for my practice. So a lot of times, I talk about a child's individual differences, and that motor planning as part of their individual difference, and you know, parents are already aware that their kiddos are struggling with speech and expressive communication. So by talking about the motor planning and using those analogies, I can say that it's suspected CAS. If it's a child who's at 20 months old or something like that, where I'm not really confident in giving that diagnosis quite yet. But then I just kind of, I very much meet the parents where they're at. So to me, it doesn't really matter as much about the diagnosis as the intervention. So if I do suspect that it's a motor planning challenge with apraxia as the diagnosis, then I'm going to provide more of a motor programming approach to my intervention.

- [Amy] Got it, thank you. So here's an interesting question from someone who works with a lot of children who stutter. She said, "There is some overlap "in how I often describe what's going on with stuttering "in that that is also something of a mistiming "of messages from the brain. "So how would you explain the difference "between CAS and stuttering?"

- [Joleen] Oh, you guys have tough questions.

- [Amy] Yeah, I know, right? That's a good one.

- [Joleen] That is an excellent one. I think, yes, the mistiming aspect, but the way that I think of stuttering, and I am not a stuttering expert, in fact, I always refer to somebody else if they are working with kids who stutter, but the way that I understand stuttering is that, again, that pathway is smooth, and then it is, it's kind of that hiccup in the timing. And so it's not so much a kink in the wiring as it is more of that final connection, if that makes sense. So that's I would probably describe it. Certainly stuttering looks very different where those kids can access the sounds, you know, in the motor planning aspects more consistently. If you were to do a stuttering eval or an evaluation, you would see a very different type of language sample and expressive, spontaneous speech that you would in a kiddo with CAS. So I'm not sure that that really answers your question, but that's how I would perceive the differences between the two.

- [Amy] Okay, very good. I think we're probably just only gonna be able to take one more question, but I did wanna remind people that Joleen was kind enough to provide her contact information if you didn't get your question answered, and wanted to contact her outside of the Classroom here. So Marissa is asking, "When it comes to selecting phoneme targets for a session, "should we select phonemes "that are in similar areas of the mouth, "for like T and D, "or can we select ones "that have constrasting characteristics, "like a K versus a T?" She said, "I am worried about confusing clients "by switching to different constrasting phonemes "within a single session."

- [Joleen] It's so funny that you asked that question. I actually had a slide in there about selecting phoneme targets and then I took it out.

- [Amy] It's probably a little beyond the basics perhaps.

- Right, right. I absolutely go with contrasting. I really base it on when their repertoire starts off and whether or not I feel like we can kind of shape some of those sounds. So if they're not, so you saw in that video clip with Nick, that he had no back sounds. So his K and his G, he was, they were Ts and Ds, they were all fronted. So for him, I would probably keep things towards the front, just because he's being more successful, and I think he doesn't have to work as hard. I still think of developmental speech sounds, too, when I'm kind of thinking about targets. I don't always, but, because there are some kids that produce, our harder sounds much more easily, and so I will certainly go with that. You then, not only is it an individual phoneme, but again, what context are those phonemes able to be produced successfully? So are we able to get a T with, again, the whole range of vowels, or are we only able to get T with a couple vowels, in which case, if we've got the consonant T, then I'm going to try to expand that part with the vowels, right? And then I'm going to shift to maybe an S, which isn't too, too far away. Obviously it's still an uvular sound. So yeah, think about place and manner for sure, depending on the kids. There's no easy, in my opinion, there's no easy way to specifically say this is exactly what you have to do.

- [Amy] Right. All right, well I'm afraid we're gonna have to wrap it up here for Joleen. We should have given you three hours I think.

- [Joleen] Well, feel free. Yes, everybody feel free to reach out to me. I a very happy to answer those questions that you might still have.

- [Amy] That is very kind of you. I did just wanna say to everybody, Joleen will be away at the ASHA convention this week and presenting there. If you happen to be going, maybe you can catch one of her talks. But otherwise, yeah, use her email address, and I'm sorry that we ran out of time today. Joleen, thanks so much, thanks to our audience

for spending an hour of your day with us, and for the great questions. I would go ahead and wrap it up here, and I hope everybody has a great day.

- [Joleen] Thanks everybody.