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Welcome to the Autism Classroom Resources Podcast, the podcast for special educators who are looking for personal and professional development. I'm your host Dr. Christine Reeve. For more than 20 years, I've worn lots of hats in special education. But my real love is helping special educators like you. This podcast will give you tips and ways to implement research based practices in a practical way in your classroom, to make your job easier and more effective.

Welcome back to the Autism Classroom Resources podcast. I am Chris Reeve, and I am your host. And we're in the midst of a series looking at how we take all those elements of instruction that I talked about in episodes 180 through 186. And we put them all into specific types of interventions.

So we're going to talk a lot about instructional loops, which I talked about in an earlier episode, I've talked about how we give directions, how we break down skills. And if you missed any of those episodes, you can grab them in the show notes. But you can also find them at autismclassroomresources.com/episode and then whatever the number of the episode is, so slash episode 180 to start.

So now we're looking at how all of those elements fit together. And today I'm focused on defining discrete trial training. At this point, I'm betting that many of you have probably heard of Discrete trials if you worked with students with autism. But there are a lot of myths about Discrete trials, or DTT, as we sometimes call it, and how it needs to be implemented. So I thought that it would be helpful to go over what we know about the research for Discrete trials, as well as what the critical elements are that we need to have in them, for them to be a discrete trial. So let's get started.

Let me start with just a little bit of history about ABA and autism. ABA has a long association with autism and other developmental disabilities through primarily the approach of addressing challenging behaviors. But in 1987, Ivar Lovaas published a research study that was really pretty groundbreaking for the area of autism, where he did 40 hours a week of discrete trial training with one group of young

children. And another group got 10 hours of what they said was just typical preschool intervention, which, frankly, back in the late 70s and early 80s, when the study was done, really didn't amount to too much of what we think of as preschool now, so just keep that in mind.

The children with the 40 hours a week made significantly better gains than the other two groups on IQ, on adaptive behavior, as well as on school outcomes. Now, again, school outcomes have changed a great deal since then, as well.

It's also important to recognize that in 1992, Catherine Maurice, who is a mother of two children, diagnosed with autism, wrote a book about her experiences providing her children with 40 hours a week of discrete trial training, and the positive outcomes that they received, in that they were no longer diagnosed by professionals as having autism. And that experience, and that very well told story and book led very much to the popularization of the research on Discrete trials. The research has been replicated many times over for students with autism. But it also gave rise to the idea that students with autism could recover. And it gave rise to the idea that intensive intervention was going to be effective for them.

Now, let me stop just for a moment and say that this was a very big impact on autism. Up to that point, we really had looked at autism as something that really we didn't know how to treat. We weren't even that good at diagnosing it back then. So part of the impact of this study was the recognition that individuals on the spectrum could make progress, that they could learn, that they could learn to talk, that they could go on to engage in typical environments. And that was really pretty new at that time.

Now, that was a long time ago. And the way that we provide early intervention to young children now, even based on that research, is significantly different than what was done back then. And there were a lot of issues and there's been a lot of backlash or discussion in the autism community since then, from adults on the spectrum who went through early intervention and found it to be very punishing, from individuals who felt that this was not something that was really necessary. There was a lot of bad ABA back then I will say. And I will say that we didn't know nearly as much about autism or the effective implementation of ABA back in the 1980s, than we do now.

So one of the things that this study brought to light and the research that followed it was the understanding that individuals with autism need interventions that are intensive, that behavioral based interventions could have an impact on them.

Now, it's important to recognize that they did not have an impact on all of them. The number of individuals who benefited from this most significantly was only half of the sample that received the 40 hours a week of intervention. So that is one element that I think is really important. It in no way told us what we need to know about all our learners on the spectrum.

Another thing that I think is important to recognize is that we've developed a lot of really good research since then, that has shown significant effects on the same level for other interventions that are also behaviorally based, but more naturalistic, and I'm going to talk about them next week. I'll talk about natural environment interventions and the research behind them.

But it's important to recognize that this was a level of research that really changed the way early intervention services were provided. One of the other caveats to thinking about this research is that when they went to replicate it, they found that many sites could not maintain this level of intervention. That 40 hours a week is a lot of intervention, especially if it's provided outside the home by trained professionals. And that has been a real issue with its implementation.

That I think paired with the concerns that we have voiced by autism advocates, who felt that the early intervention was very punishing and the way that it was done at times was punishing, I think, are really important considerations to take into account.

But that doesn't mean that the discrete trial approach one type of teaching training isn't worth looking at for specific skills. And now compare and contrast this week and next, as I talk about naturalistic strategies next week, some of the pros and cons between the two.

But it's important to recognize that discrete trial training is implemented every day, if you do flashcards with your kids, if you're following the implementation of the elements I'm going to talk about today, then you may be doing Discrete trials in your classroom.

So it's important to recognize that when we talk about ABA and Discrete trials, we're talking about one specific type of intervention with a very structured approach. It does have an evidence base, it's been found by the agencies that look at evidence bases for autism to be effective for a wide range of skills and behaviors across different studies. So I think that's an important component to recognize as well.

So let's go ahead and start talking about what are Discrete trials? Well, Discrete trials are basically mini learning opportunities that are set up with a definite beginning and end, they're discrete. And they have a high level of repetition. And so it's a very highly structured presentation of specific materials in a specific way. That is all it is, it is a set of teaching trials, teaching opportunities, that are put together that are made up of six specific steps that are tightly controlled.

And one of the reasons that Discrete trials, especially back in the early days, were so effective, is because it had a lot of opportunities for the student to practice. And that is something that we recognize across the literature now that individuals with autism really benefit from.

Now, that doesn't necessarily have to be done in a drill style format. And next week, we'll talk about some other ways to do that. And I'll address some of the myths about Discrete trials a little bit later in this episode as well, to talk about the fact that we don't have to do the same trial over and over and over. And we don't always have to do it one to one.

So it is a very highly structured presentation, which means that it eliminates a lot of extraneous information from the environment, makes the materials very simple, and that is something that for some of our students on the spectrum can be very, very useful because they're distracted by those outside types of stimuli. So the more that we can kind of pare it down, maybe to start is going to make sense.

I should also add that there's not a ton of research right now about who is going to benefit most from a more structured approach or more naturalistic approach, our research isn't there yet. So the way that we have to determine this is we try strategies, and we take data, and we make decisions based on that information.

I've had students who learn better with naturalistic instruction, I've had students who learn better with a discrete trial, more secluded type of approach. It just depends on what their learning needs are, and how we're implementing all those different things.

So Discrete trials are simply highly structured presentation of material made up of six different steps, gaining attention, giving the direction, using a prompt if it's needed, getting the response, and the consequence of follows that response, and then a short pause in between.

So let's look more closely at what those elements entail. So let's think about attending behavior. Now, I've talked about this in previous episodes. And this is an area where self advocates I think, have given us really good information, again, that really focusing on them making eye contact for some is painful. For some, it's not necessary, it's coercive. There's a lot of issues with that.

But we do need to know when we are teaching that our students are actually listening to us. So one of the things we might look for when we call their name, do they look at us? Do they give us visual attention, I'm not as concerned with eye contact, as I am with that kind of cue.

But I think the other thing we want to think about is it might be a nonverbal signal that they use, instead of looking at your face, which may be overwhelming for them at their point instruction, it might be just raising a finger to let you know, yes, I heard you. That's a good way to kind of avoid the eye contact issue, but make sure that they're giving you some signal that they're attending.

We want to make sure they're listening, we want to make sure that before we give them an

We want to make sure they're listening, we want to make sure that before we give them an instruction, they're focused on the instruction. If they're not, then generally we will work to gain their attention before we present the trial. Because if we present the trial at a point that the student isn't attending, then we're not going to be really successful at our trial.

So I talked about getting attention and giving clear directions in Episode 184. And you can grab that at autismclassroomresources.com/episode184, where I talk in more detail, because that is a fundamental element of all good instruction.

Our next step is the direction that we give. And then ABA, we call that the discriminative stimulus or the SD. And what that means is that this stimulus means if you do this behavior, you get this outcome, this same stimulus, if you do the different or the wrong skill, then you don't get that outcome or you get a different outcome. So that's what's discriminative about it.

Essentially, it is the thing that you want to spark that target behavior. Sometimes it is a verbal direction. And if it is a verbal direction, we want to make sure that it is clear and concise. And typically when I start instruction, I start with very clear, concise instructions. And then I start to vary it as the student gains skills, because the world doesn't exist with clear and concise directions all the time. And we want to make sure that our students have the skills to generalize that. And we have to understand that when we're using Discrete trials, if we're sticking to these six elements and being very tight and how we're presenting them, then we're going to have to do something later to get the skill generalized.

And that's kind of the opposite of naturalistic environment strategies that work on teaching them in the natural environment take longer to to master the first time, but when they are mastered, they're already generalized. And I'll talk more about that next week.

So when we think about a verbal direction, we want it to be clear and concise. And Grow and LeBlanc, and I'll put that reference in the shownotes, did a really good study looking at receptive vocabulary, where they found that we were giving directions that really weren't highlighting the most key element of the directions.

And so for instance, if we were teaching a student to point to or give me different colors, I might say touch green, give me green, touch green, touch blue, touch red, the touch doesn't change. It's not really part of the discrimination, because the skill of giving or pointing or whatever we're doing is the same each time. You know, if I tell him to point to and he hands it to me, I'm probably going to count it as a right answer. The key element is the color name.

So if we have students that are really struggling, if you're working with students that are really struggling to get a concept, think about how you can pair the directions down to the simple element that they really, really need to focus on. So if we're teaching colors, it would be the color name. So

instead of touch green, I would just say green. Typically, if I've done trials with them before they know what the drill is about what to do.

Your direction can also be the visual presentation of an object or a situation. So I put the favorite thing that he really loves in a container he can't open and I put it down, which by the way, is a Prizant communication, temptation, that is a naturalistic intervention, that is also an SD. Traditionally, in Discrete trials are SDs or verbal. But that doesn't mean that they have to be in all of our instruction. So that's an important component.

So we want to make sure that our SDs are done in a way that are going to lend themselves to the real world. So if I'm teaching a student to have a conversation, or tell people about themselves, getting to know someone that they've just met, or at a party or something like that, I'm probably going to present them with a situation in which they see someone they don't know. Or I'm presenting them with a situation that they're not familiar with.

I'm probably not going to use a discrete trial where I say something like find out about me, because that doesn't translate to the real world at all. Nobody comes up to me at a party and says, find out about me.T hey come up to me and say, Hey, what's your name? Tell me about yourself. So maybe that's the skill we should be teaching. So when we think about our skills, we want to think about how they relate to the real world as well.

We also want to make sure that our directions are matching our skill. So if I'm teaching a student to imitate, which means that when I touch my head, he touches his head, I don't say touch head, because that will be following a direction. I want to put my hands on my head and say, do what I do, or do this. I don't want to tell them what the skill is. That's a different skill. So we want to be clear on what the skill is.

We also want to make sure that we're not using a lot of extra verbiage that's going to confuse things. So we probably aren't going to say now let's go sit down at your desk and we're going to have a really good time. And then you can show me which one is blue. Because if the touch blue is confusing, trust me, that's really confusing. What is the element of supposed to be paying attention to here? Sitting at my desk, waiting for you to show me something? What am I supposed to be focused on?

Once we give the direction we use a prompt and I talked about prompting in our instructional strategies. I talked about them a lot on the blog. But I think one of the things that's important to remember is that we use a prompt to get to the right answer so the student gets reinforced. That is its purpose. If we're using it for any other purpose than that, it's not really an instructional prompt. Then we're just helping, and that's okay at times. But we want to make sure that we're using prompting and fading them out, so that the behavior can be reinforced.

So obviously, we're going to prompt more often when we're teaching new skills. But we always want

So obviously, we're going to prompt more often when we're teaching new skills. But we always want to make sure that our prompts are training wheels that we are fading out in some sort of systematic process.

When we use that prompt, or if we don't need it, we get a response from the student. The likelihood of that response occurring again, is going to depend on what we do after it. If we meet that response with a reinforcer, something that increases that response to that stimuli over time, then the natural progression of things will be that the student is making progress and learning that skill. If we meet that response, let's say it's a wrong response with an error correction, then hopefully we're reducing the likelihood that that response will happen.

We're going to treat each response kind of as a mini assessment of where we are with that skill. And we have to really be prepared for all possible student responses. Because sometimes we get caught unaware and we give inadvertent signals that we weren't thinking about, and that's okay occasionally. But if it becomes a habit, it becomes a problem. So then we have that event that follows that response. We might reinforce it, that it was the right answer, and we want to see more of it so we use an effective reinforcer. And I've got lots of episodes talking about reinforcement. It's one of my favorite topics. It might be that we give them some kind of feedback.

I talked in more detail in Episode 185 about error correction versus errorless learning and that really gets at that feedback issue. And the feedback might be that we don't do anything. That we pick the materials up, and we present another task or we re-present this task, and that's the only cue that they get. That was not right, they don't get reinforced. So the skill doesn't increase, that response doesn't increase but we are just sending that message without telling them that they did something wrong, which can be really important.

Error correction may not give some of our students useful information about what they did wrong, it just tells them that they did it wrong. Errorless training may avoid some of that emotional behavior. And again, I talked all about that in episode 185.

It is really important that we're using those powerful reinforcers that we're pairing those reinforcers with ourselves, because that's going to make them more likely to want to interact with us and the materials.

We need to make sure that we're paying attention to the pace of instruction, because instruction that moves quickly is more efficient and more effective. But we may embed trials into other activities, in which case, maybe we turn and work with another student, we do a trial with that student. And then we turn back and do a trial with this student. And you may do some of that in your small group instruction.

So after that consequence is something called the inter trial interval, which is just a brief period of

time between the consequence of this trial and the SD or the direction of the next trial. And it might include the student consuming reinforcer, it might be playing with a reinforcer or engaging with a reinforcer in some way, it may be that my talking to the student is a reinforcer. So we have a little chat before we go to the next thing. It can be long, or it can be short, depends on how well the student does, at being able to stay focused on instruction.

So finally, some considerations in Discrete trials, most of the research that has been done focuses on one to one instruction. And people often tend to think that Discrete trials has to be provided in a one to one instruction situation.

That is not the case, we do have some research that shows it can be effective with small groups. You need to be skilled at doing it but it can definitely be something that you use in say, your small group instruction with the example I just gave where I gave him a direction, I got a response, I provided a reinforcer, and he got it right. He's doing that and I turn to another student, I give him an SD, I get a response, I have a consequence for that, I moved back to child number one. It does, again, take skill and practice. But it is feasible to do that.

And if you have been paying attention for the last few episodes, you'll recognize that the elements of a single discrete trial are the same as good instructional loops. So we got a lot more out of the discrete trial literature than just Discrete trials are important. We learned some of the elements that were really salient in our instruction.

We can sometimes do what we call mass trials where we get the same task over and over. But we can also do what we call mix and vary where we build it in with other skills. That generally tends to keep students engagement better, it may increase their generalization of the skills as well. But it's important to recognize that for some of our students that are really working on some real basic learning readiness skills, we really may need to repeat things more often. So again, you take your data, and you make your decisions based on your instructional data.

So what all this means is that discrete trials can be very useful, used in learning readiness skills, or precursor skills, which I talked about just last week in 188. Things like sitting and following directions, where students are just learning to focus on instruction. That's the whole point of those types of skills. So we want to really think about how we are using them. So they can be very useful when we really do need to pare down the environment to get them focused. They are very useful on working on things like receptive language skills, where they're identifying items. They can be useful for labeling things. But we probably need to move more into the natural environment to really work on that.

Discrete trials work well for what I think of as responsive communication skills, answering questions, following directions, where I'm giving a clear direction, and I'm getting the student to respond to it. That's probably different than things like spontaneous communication, which Discrete trials is not very good at, where we want the student to initiate. We have to really stand on her head and create opportunities for them to communicate using those things.

And naturalistic instruction may be a more efficient way to start that, but you could start in a discrete trial situation where I put his favorite thing in something and I put it down in front of him. And that may be the beginning of that skill and then you build out to more naturalistic settings. It's not necessarily really great for abstract responses that are highly contextualized don't have a simple answer, just because you really do need to know, right answer wrong answer. And it's not really great for building social skills, because social skills really don't work in a discrete trial format. People don't respond in that regular manner that Discrete trials takes place in.

So some important elements we want to think about is to make sure we're mixing up our material so that they don't get used to always having the right wouldn't be the right answer, that we're using multiple pictures or multiple objects of skills, multiple materials, so that their generalization is enhanced later on. So we're not having to reteach a whole skill, because we taught a big blue cup with only one big blue cup, and that became its name. And when I showed him another big blue cup, he had no idea what it was because it wasn't the one he named Big Blue Cup. So we want to make sure that our kids don't get stuck in those kinds of situations.

We want to make sure to use really meaningful reinforcers. And as much as we can to reinforce in functional manner. So if he gives me the container that has that favorite item in it, and he gives me some approximation to ask me to open it, I'm not going to say, Oh, that's really great, give me a high five and move on, I'm going to open the container and give him the item. That's the functional reinforcer for that.

And we want to make sure that we are mixing up choosing materials that have different qualities so we really build in some opportunities for generalization. We want to keep our words consistent in early programs, and then change them up as we go on. So we want to consider saying, you know, just the relative word like green that I talked about earlier, instead of touch green.

So we're talking a lot episode that I have some learning readiness products in my store. I will be adding some more that, some that have a more traditional approach with the ones that have been there in the past use arrays, which can be really great if you're, if you have paraprofessionals that are implementing your Discrete trials. But I'll be adding some more that have a more traditional graph as you go kind of data sheet and I'll link to those in the show notes. I'm also going to be adding in some more of those. So I will add those in as well. I'll make sure that you've got easy access to the all of those.

So thanks for joining me today. And I hope this gives you some ideas about what Discrete trials really are, and how they can be implemented because I think we do have a lot of myths about them.

If you found this helpful, I would really, really appreciate it if you go over to Apple podcasts and leave a review with what you think about the podcast and you can find a link to my link on the Apple

podcasts on the website for this episode. But that helps me to reach more teachers so I can share more strategies and tools with them as well.

I'll be back next week with a new episode where we will be talking about naturalistic behavioral interventions. So I'll talk to you soon.

Thanks so much for listening to today's episode of the Autism Classroom Resources podcast. For even more support, you can access free materials, webinars and Video Tips inside my free resource library. Sign up at autismclassroomresources.com/free. That's F-R-E-E or click the link in the show notes to join the free library today. I'll catch you again next week.