Transcript:

Hi, everyone.

I'm Dr Nicole Dargue from the Autism Centre of Excellence at Griffith University, and what I'm going to be talking about today in this webinar is what we currently know about gesture and autism.

So, what is a gesture?

Gesture can, of course, be many things, including the facial expressions you use to communicate how you're feeling or what you're thinking.

But the kinds of gestures I'll be discussing today focus solely on movements made by our hands or arms.

We know that gestures are produced universally alongside speech and, broadly speaking, gestures can be used to assist communication with others or to assist the person gesturing themselves.

For example, we might add information to our spoken message using our hands to clarify what we're saying to another person.

We might use our pointer finger to track where we're up to in reading to make sure we know where we are up to.

What we know, though, is that not all gestures are equal, and there are several different kinds of gestures that can be used for various reasons.

We know that some gestures might be used to capture or direct attention.

Think about all the times that a child has come up and shown you their favourite toy or tapped on an object in front of them several times to obtain your attention.

They might even give you their favourite toy, or they might request something that you're holding.

We also often see children point to objects to request them, particularly when they are still developing their vocabulary.

A toddler might point to a cookie, for example, while saying, "Oh", to indicate that they want that cookie.

We also often use pointing to direct another person's attention to something that's caught our attention in the distance.

For example, we might point to a cute dog off into the distance and say, “Ah, look at that dog."

Another kind of gesture we often see in young children is the use of another person, as a tool. So, some children might grab your hand and actively drag you where they want you to go.

They might even place your hand on a bubble toy to indicate that they want you to produce more bubbles with that toy.

But gestures aren't just used to direct attention or to make requests.

Some gestures actually reinforce or add information to our spoken messages as well.

Often our gestures will illustrate or provide a description of what we're saying. These can be termed descriptive gestures.

For example, we might make a circle with our hands while talking about a ball.

We might even make a rectangle with our hands to highlight the size of a big Christmas present.

There are also some gestures that we've learned the meaning of over time, like thumbs up as being an indicator of being okay or good to go or shrugging our shoulders with our hands out like this to suggest we aren't sure.

And we use these gestures to provide a response, particularly when responding to someone in the distance or when we're in a loud environment.

Some of our gestures also add emphasis to a spoken message.

Think about all those times you've had a conversation with someone, and they've been making rhythmic beats of the hands throughout.

While a lot of the gestures I've just described, though, are common during our conversations with other people, there are some gestures that we use for our own benefit, like using our fingers to help us to count or using our pointer finger to help with tracking one's reading, as I mentioned before.

So why do we care about gestures?

Well, it turns out they're more than just random movements of the hands.

Both the production and observation of gestures by an individual has been shown to enhance learning in neurotypical individuals across a variety of areas, including mathematics, comprehension of route directions, recall of stories, problem solving and more.

However, the benefits of gesture on learning are unclear to date in individuals on the autism spectrum.

So why are findings unclear?

We know that there are some widely held beliefs about autism that have stuck, and these beliefs aren't always accurate or applicable to every person on the spectrum.

Let's take theory of mind, for example, or the ability to think about a situation from another person's perspective or point of view.

It's widely assumed that individuals on the autism spectrum experience difficulty with theory of mind, and this assumption has been held despite researchers showing that difficulties with theory of mind aren't necessarily unique to autism.

In the same way, there's a widely held belief that individuals on the spectrum have difficulties with the use and understanding of gesture, but in fact we don't really have good evidence to support this.

In reality, the literature is actually scarce and contradictory.

So, what are the implications of having this belief that individuals on the spectrum have difficulties using and understanding gesture when it isn't based on solid evidence?

We know that some diagnostic assessment tools explore how individuals gesture, and if they don't gesture much during the assessment, they can end up with a higher score than if they did gesture.

A lot of emphasis is put on those descriptive gestures are described earlier in particular, so there are those ones that illustrate an object, action or event, like using your fingers like this to illustrate walking.

While there are some studies that have shown reduced gesture rates in individuals on the spectrum, some research highlights that individuals on the spectrum may use gesture in communication at a comparable rate to their neurotypical peers.

And this actually includes those descriptive gestures I mentioned above.

Research has also shown that gesture production during a story retell was non-significantly correlated with gesture scores on some diagnostic assessments, and one study even found that children on the autism spectrum produced more descriptive gestures than their neurotypical peers.

So what other implications does this commonly held belief have?

Let's now turn to learning supports.

The effects of gesture on learning in individuals on the autism spectrum are currently under researched, and part of the reason for this may be because people think that gestures might not be helpful.

We also know that when individuals judge gesture as being less likely to be beneficial, they may actually gesture less.

And this could theoretically negatively impact the gesture frequency of individuals working with children on the autism spectrum who may actually benefit from their learning supports gestures.

A handful of studies have looked at whether individuals on the autism spectrum differ and how well they understand and take meaning from others' gestures compared to their neurotypical peers.

So, Trujillo and colleagues, as well as Dimitrova and colleagues both reported no difference in how well individuals on the spectrum understood observe gestures when compared to their neurotypical peers.

And even though Silverman and colleagues found that individuals on the spectrum were slower to comprehend gestures than their neurotypical peers, the individuals on the spectrum were still able to understand the gestures accurately.

So, if individuals on the spectrum can comprehend gestures at a comparable rate to the neuro typical peers, then perhaps observing others gestures can benefit learning in individuals on the autism spectrum as well.

So, what do we know about gesture and the impact it might have on learning in individuals on the autism spectrum?

A couple of studies to date have explored whether watching another person's gestures, like a teachers for example, could enhance learning in the individuals on the autism spectrum.

In 2011, Kurt found that children on the spectrum benefited from the observation of simple gestures and sign language that's representative of accompanying speech. In 2021, Dargue and colleagues found that the observation of gestures that represent speech - so those descriptive gestures I described earlier - enhanced recall of narratives compared to observing no gestures in children on the autism spectrum. So that it does appear we've got some emerging evidence that observing another person's gestures might benefit learning in individuals on the autism spectrum.

But we do need more.

What about production of gesture by individuals on the spectrum?

Could that benefit learning too?

What we know so far is that a team of researchers overseas have shown that pointing gestures, as well as those giving gestures I described earlier, predict vocabulary development in toddlers on the autism spectrum.

To give an example, the researchers found that objects that toddlers pointed to were more likely to show up in their speech over the next year.

So, remember that example I gave you earlier of a toddler saying, "Oh", while pointing to a cookie? Based on the researchers findings, it might be possible that the toddler will be saying "cookie" in the not too distant future.

But while we know that some gestures we produce, like using our fingers to count, can assist counting performance in neurotypical children, we just don't know yet if using those same counting gestures helps individuals on the autism spectrum count in a similar way.

So, it's clear that we need more research in this area.

Watch this space.

But from what we do know, the story seems to be more complicated than the commonly held view that individuals on the autism spectrum have difficulties with the use and comprehension of gesture.

Gesture might even be able to be used as a tool to support learning.

So now it's time to reflect.

Have you ever thought about how many gestures children make when interacting with you or even the type of gestures they make?

They might be using more than you think.

Maybe they're putting their hands over their ears to communicate that something is too loud.

They might be pointing to a cute dog at the pet store, begging to take it home.

They might even be covering up their eyes with their hands to initiate a game of peekaboo.

Have a think about when your children or students use gestures.

What purpose might they serve?

Now let's think about the kinds of gestures you make when communicating with children.

What purpose might they have?

Maybe you're pointing out where they left their favourite toy in the very, very messy toy room.

Maybe you're cupping your ear to indicate that you need them to speak up because you can't quite hear them.

Or maybe you're just so exhausted that you can't think of the right word to use so you act it out with your hands.

Surely that's not just me.

Thanks for watching this webinar.

I hope you found it interesting and taken away some information on what we currently know about how our hands might help individuals on the autism spectrum to understand.