



TALKING HANDS: HOW GESTURES HELP US COMMUNICATE

Bashar M. Farran^{1*}, Stephen J. Sheinkopf^{2,3} and Laura M. Morett^{1,4}

¹Department of Speech, Language, and Hearing Sciences, University of Missouri, Columbia, MO, United States

²Department of Pediatrics, University of Missouri, Columbia, MO, United States

³Thompson Center for Autism and Neurodevelopment, University of Missouri, Columbia, MO, United States

⁴Interdisciplinary Neuroscience Program, University of Missouri, Columbia, MO, United States

YOUNG REVIEWERS:



FITZGERALD
ELEMENTARY
SCHOOL

AGES: 9–10



VERDI
ELEMENTARY
SCHOOL—MS.
MEIER'S
AND MRS.
CARLSON'S

AGES: 9–10

Gestures are movements we make with our hands and bodies to help us talk and share ideas. This article explains how gestures can make it easier for people to understand and remember concepts. We discuss how gestures can help kids both with and without autism communicate better, especially when finding the right words is tough. Gestures can also make learning new languages more fun and easier by showing how words sound and what they mean. Different types of gestures can make conversation and learning clearer and more exciting. This article shows why using gestures is a smart way to teach and talk with others.

GESTURES

Movements, usually of the hands and arms, used to demonstrate meaning. They can be made with other body parts, such as the head, legs, and feet.

REPRESENTATIONAL GESTURES

Gestures that show objects or actions, visually representing ideas related to speech, like pretending to brush your teeth or flapping your arms like a bird.

DEICTIC GESTURES

Pointing gestures that direct attention to a location or object.

Figure 1

There are several types of gestures, including iconic, representational, beat, and deictic. Each kind of gesture helps people communicate with others in different ways.

METAPHORIC GESTURES

Gestures that represent invisible or imaginary ideas, such as pretending to hold an idea in your open hand or forming your hands into a heart shape to show love.

ICONIC GESTURES

Gestures that represent concrete ideas, often by mimicking the action or object being discussed, like using your hands to show the shape and size of “a big ball”.

THE SECRET LANGUAGE OF HANDS

People use their hands when talking, to help other people understand and stay interested in what they are saying. When people combine **gestures** with speech, they give the listener visual clues that make the message clearer. For example, if someone pretends to write or turn a doorknob while talking about it, their gestures show exactly what they mean, making it easier for other people to understand [1, 2]. Gesturing also makes what a person is saying more interesting, helping others pay attention to and understand them [3]. Gestures also help people organize their thoughts when they are talking, making their speech smoother and more fluent. For kids and people who have trouble speaking, gestures can make tricky ideas easier to understand and explain. Gestures are not just something extra—they are an important part of how people communicate.

Gestures provide a way to express and understand ideas when people have difficulty using words to communicate. Gestures come in several types: **representational gestures**; **deictic (pointing) gestures**; **metaphoric gestures**; **iconic gestures**; and **beat gestures** (Figure 1) [4]. Each kind of gesture helps people communicate with others in different ways.

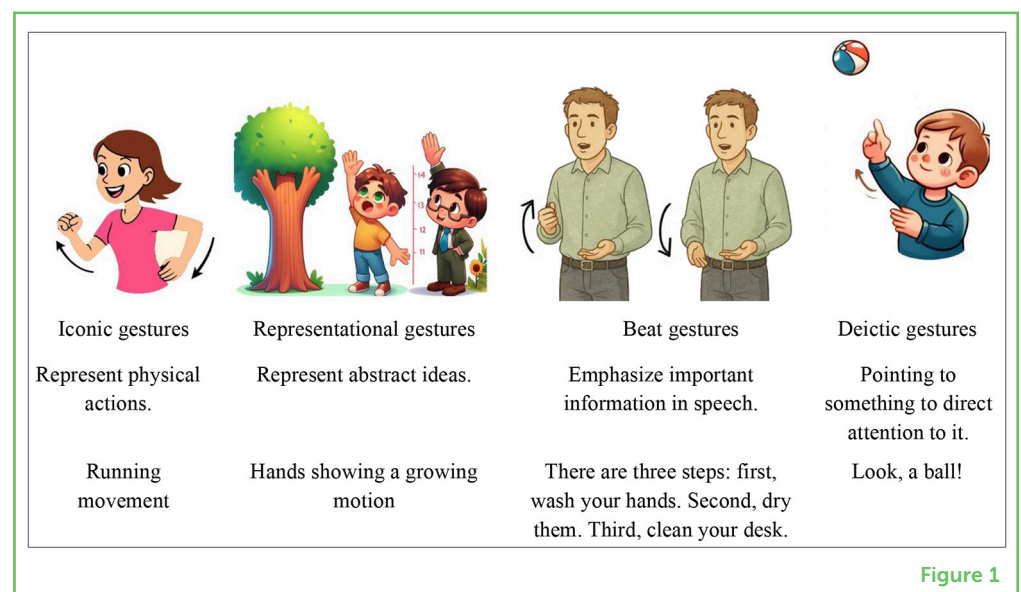


Figure 1

WHAT ARE GESTURES AND WHY DO THEY MATTER?

A gesture is a body movement that helps people communicate. Gestures are mostly made using the hands but may be made with other body parts, such as the head and feet. Gestures often go along with speech and connect directly to what is being said. They are best understood as part of a system that uses both gestures and speech to communicate [4].

BEAT GESTURES

Gestures showing the rhythm of speech, such as tapping a hand in rhythm while saying, "There are three steps: first, wash your hands. Second, dry them. Third, clean your desk".

Figure 2

The "thumbs up" gesture can mean something good in some cultures but can mean something bad in other cultures. It is important to understand what gestures mean in different cultures to avoid misunderstandings.

AUTISM SPECTRUM DISORDER

A condition that can make it difficult to express oneself and understand others. Children with ASD may think in unique ways and do the same things over and over.

Gestures are closely connected to culture, and the same gesture can mean different things in different places. This happens because different cultures have different ways of using the body to show respect, emotions, and ideas. These shared meanings of gestures are passed down over time, just like in spoken language. For example, a thumbs-up gesture shows approval in many Western countries like the United States and the United Kingdom. But in some places, like Greece and Sardinia, it can be seen as rude or offensive (Figure 2). This is why it is important to understand what gestures mean in different cultures to avoid misunderstandings. Gestures can help show how someone feels and what they want. They often follow social rules that tell us how to act politely or show respect. Gestures also help people feel connected to their cultural or social groups. They play an important role in learning and socializing, especially for kids who watch and copy the gestures of adults to learn how to communicate. In Japan, for example, bowing shows respect. A deeper and longer bow is used to greet a very important person. In India, people use the "namaste" gesture, in which they press their palms together in front of their chest to show respect and greet others.

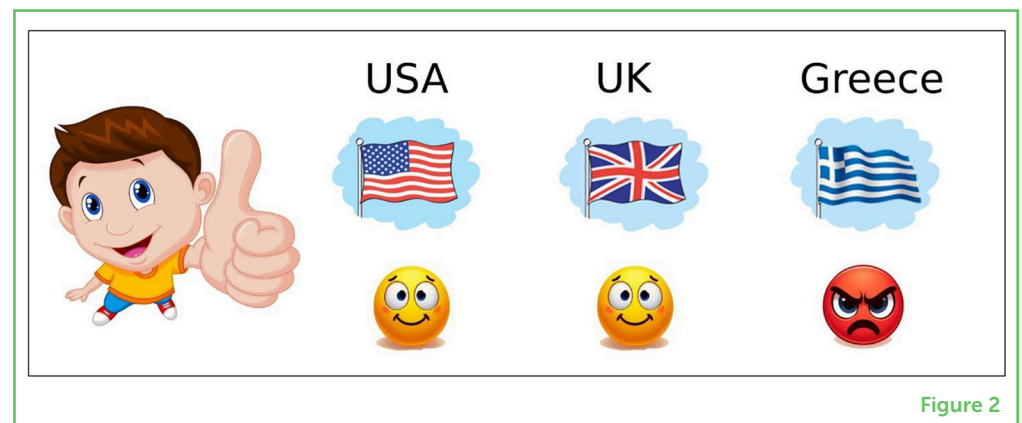


Figure 2

HOW ARE GESTURES DIFFERENT IN CHILDREN ON THE AUTISM SPECTRUM?

Autism spectrum disorder (ASD) is a condition that makes it difficult for people to understand others and to use social cues such as gestures and facial expressions to communicate. Each person with autism is different, and they may communicate in different ways.

Children with autism often have difficulty communicating with both words and gestures and understanding this can help others better support them [5]. Some autistic children might not speak at all, while others may have limited speech, making it hard for them to share their thoughts and needs. This can lead to frustration and misunderstandings. They may also find it challenging to understand social cues such as gestures, facial expressions, and knowing when it is their turn to talk. This can make it tough to know when to speak, how

DEVELOPMENTAL LANGUAGE DISORDER

A communication disorder that interferes with learning, understanding, and using language. Difficulties are not explained by other conditions (e.g., hearing loss or autism) or by lack of exposure to language.

to respond, or what someone else means. When it comes to nonverbal communication (communication without using words) children on the autism spectrum might not use gestures as often or understand them in the same way others do, which can make interactions more difficult. Children with language delays but without autism often use gestures to help make up the challenge they have with speech. However, autistic children often have delays in language but have trouble making up for this difficulty by using gestures. All these factors mean that communication for children on the autism spectrum can be different and sometimes challenging, but understanding these differences helps people find better ways to interact and communicate with them. Therefore, gestures can help children with autism by giving them other ways to express what they want or feel when words are hard to use.

To understand how autistic and non-autistic children use gestures differently, we need to look closely at how they use their hands and bodies to communicate. One difference is that children on the autism spectrum often use fewer deictic (pointing) gestures compared to their typically developing peers. This reduced use of gestures can make it more challenging for them to share experiences or direct others' attention effectively. Additionally, the gestures of autistic children may not match their speech in timing or meaning, leading to less coordination between what they say and how they gesture. This contrasts with children with language delays who are not on the autism spectrum. For example, children with **developmental language disorders** use gestures in ways that help them communicate with others even though they have trouble speaking and their gestures tend to match their speech in timing and meaning. Children on the autism spectrum may use gestures to convey ideas, but these gestures are often less varied and complex than the gestures of their typical peers. This reduced gesture use can be one of the first signs of autism and is often noticed by caregivers before the age of two. Recognizing this early sign is important to know that these children may need support.

Gestures are also an important part of how infants and young children learn to talk and understand what others are saying. Imagine that you are playing with a 1- or 2-year-old and they point to a dog and say "woof, woof!" You might say, "Oh, a dog!" or "Wow, that is a big dog!" and this helps the child better understand words like "big" and "dog". Gesturing helps children learn new words and practice communicating with other people. Gestures also play a key role in social communication by helping children to focus on shared topics with others, which is important for learning and social interaction [6].

HOW CAN KIDS USE GESTURES TO LEARN BETTER AT SCHOOL?

Gestures provide visual clues that can help people understand words and ideas in a new language. For example, gesturing to show actions or concepts makes it easier to remember what words mean. Also, using gestures while speaking can help with remembering new phrases later. In language learning, gestures can help learners tell apart word meanings and speech sounds [7], making it easier to learn by showing what is heard.

Watching and using gestures can help with understanding, including in school. When students see teachers gesture while explaining concepts, this helps students understand and remember the concepts better. This is because gestures can make complicated ideas easier to understand [3]. Gestures also capture students' interest and make learning more fun. For example, when teachers use their hands to show how to solve a math problem, it helps students see the steps more clearly. In language learning, acting out words like "jump" or "run" helps students remember them. In history class, using gestures to show where armies were on a battlefield helps students understand events better. These examples show how gestures can make learning more effective and engaging in different subjects. How much gestures help may depend on students' age, the type of material, and whether gestures repeat or add more information to what is being said. For example, children may benefit from gestures more than adults do because their verbal skills are still developing and gestures can help bridge gaps in understanding.

GESTURES ARE IMPORTANT!

Gestures are a secret superpower that makes communication clearer and more interesting. When we wave our hands or point while speaking, we help others understand us better. Imagine seeing a friend in a busy and loud hallway. You might wave or make a gesture that tells your friend that you want them to come over to you. Or imagine trying to explain a tricky idea; using gestures can make it easier for others to understand what you mean. Gestures catch listeners' attention and keep them engaged, like when a good storyteller uses hand movements to make a story come alive. They also help us organize our thoughts, so we talk more smoothly without getting stuck. Kids tend to find gestures helpful because they may not always be able to find the right words, but their hand motions may make everything clear. Gestures are especially important for children with ASD, who may find it challenging to express themselves through speech. Gestures may help these children communicate by bridging the gap between what they think and what they want to say. Gestures can also be a great help when learning new languages by showing us what words sound like and what they mean, making it easier to remember them. Gestures

and speech work together like a team, making sure our messages get through. Next time you are talking, remember that your hands do a lot of the talking, too!

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YOUNG REVIEWERS

FITZGERALD ELEMENTARY SCHOOL, AGES: 9–10

We are a selected group of seven enthusiastic, creative, and positive students in the 4th grade at FitzGerald Elementary School, ages 9–10. We are dedicated to learning and super excited about the new discoveries in science.



VERDI ELEMENTARY SCHOOL—MS. MEIER'S AND MRS. CARLSON'S, AGES: 9–10

Verdi Elementary School 4th grade class of 2033 are excited, engaged learners who are passionate about understanding new ideas and making school a fun and welcoming place to learn and make friends. At 9 or 10 years of age, they have spent this school year learning about where they live and the state of Nevada, as well as exploring how their brains help them make decisions, process new ideas, tell hilarious jokes, and shape who they are as people.



AUTHORS

BASHAR M. FARRAN

Dr. Bashar M. Farran has a Ph.D. in linguistics and his research looks at Laura M. Morett—make “associate professor”. His research looks at how the brain helps people speak, listen, and use gestures, especially in people with autism. He uses special brain imaging tools, like EEG and fNIRS, to see what’s happening in the brain during communication. He is also interested in how people learn new



languages and use more than one language. Dr. Farran's work connects ideas from language studies, brain science, and experimental settings to better understand how people communicate. *bfarran89@gmail.com



STEPHEN J. SHEINKOPF

Dr. Stephen Sheinkopf is a professor of pediatrics at the University of Missouri and is based at the Thompson Center for Autism and Neurodevelopment. He completed his Ph.D. at the University of Miami and his postdoctoral fellowship at Brown University. Dr. Sheinkopf joined the faculty at Brown University in 2001 and remained there until moving to the University of Missouri in 2021. Dr. Sheinkopf is a clinician and researcher. His work uses state-of-the-art and novel approaches to study autism in infancy and focuses on improving understanding of the wide range of developmental outcomes in autism spectrum disorders.



LAURA M. MORETT

Dr. Laura Morett is MizzouForward Associate Professor of speech, language and hearing sciences at the University of Missouri. Dr. Morett received her Ph.D. in cognitive psychology from University of California, Santa Cruz and completed postdoctoral fellowships at the University of Pittsburgh and Yale University in psychiatry. Prior to her current position, she was assistant professor of educational psychology at the University of Alabama. Dr. Morett's research focuses on hand gesture and its relationship to speech in typical and atypical development, focusing on second language acquisition and autism spectrum disorders.