



RESEARCH SUMMARY: Gesture's role in speaking, learning and creating language

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Summary of Key Messages

- Speakers from all cultures use gestures
- Gestures are hand movements that people use when they talk. They are not the same as 'signs'
- Gestures use the visual-spatial modality while speech uses the auditory-verbal modality. Gestures and speech work together as part of a single, connected system
- Gesture has an important role in:
 - Learning speech and language
 - Producing (expressing) speech and language
 - Comprehending (understanding) speech and language
 - Predicting how children are likely to develop speech and language skills over time
 - Helping children to learn and remember new information across different settings such as home, school and in the clinic
 - Helping children to show what they know and understand across different settings such as home, school and in the clinic
 - Helping communication partners such as parents and teachers to support and enhance communication development
- Understanding the role of gesture at different developmental points throughout the lifespan can inform assessment, diagnosis, intervention and instruction across different settings such as home, school and in the clinic
- Future research is needed to learn more about the specific ways in which gesture is used by different individuals and groups of people

More about this research

The authors of this paper reviewed a very large amount of research literature to answer the question: How does gesture contribute to the way that humans communicate and think? The authors felt this was an important topic of study because all humans gesture. Gesture is therefore an integral component of communication across cultures that warrants greater understanding.

What did the researchers do?

The authors have collated and synthesised the findings of a vast amount of research on gesture spanning over 3 decades. They have structured their narrative review to illustrate evidence-based messages aligned with four key areas: (1) Gesture's role in language processing; (2) Gesture's role in language learning and beyond; (3) Gesture's role in creating language; and (4) Gesture's role in the clinic and the classroom.

What did the researchers find?

Gesture's role in language processing:

Gestures convey global or 'big picture' meanings, whereas speech conveys discrete or 'linguistic' aspects of meaning. Both work together in a complementary way. Gestures appear to help speakers organise visual-spatial information into manageable units that they can then attach speech labels to. Gesture can also help individuals access lexical items (words) in their vocabulary by acting as a cross-modal primer. In other words, gestures can prompt an individual about what they want to say and make accessing stored vocabulary easier. Gestures also support language comprehension. In particular, using gestures to convey concepts that involve movement (e.g. verbs such as 'run', 'roll', 'clap') supports comprehension more than if gestures are used to convey abstract concepts. In particular, when gestures convey the same information as speech (semantic redundancy), comprehension is enhanced. Sometimes though, gestures carry different information to what is conveyed through speech alone. They add unique meanings and can express specificity associated with a concept (e.g. saying 'hat' but making the gesture for tilting down the brim of a baseball cap to indicate the type of hat).

Gesture's role in language learning and beyond:

Most children will gesture before they start speaking. These gestures not only come before speech, but they actually have a role in facilitating language development. Deictic gestures such as pointing (where meaning is conferred through context alone), and conventional gestures common within a culture (e.g. waving bye-bye, shaking head for 'no') are usually the first true gestures seen in young children. These are followed by iconic gestures wherein the gesture itself has meaning that is consistent across contexts (e.g. flapping hands like bird wings to indicate 'bird'). These gestures function like words in speech; they are used by children to express ideas that cannot yet be conveyed in speech. Yet, although gestures function like words, children very rarely join two gestures together. They are more likely to pair a word with a gesture and these combinations are seen well before any attempts to combine two spoken words.

The way that children use gestures and speech together changes over time and the type, number and use of gesture at a young age can predict the words that will enter a child's verbal vocabulary later in their development. As such, paying attention to early use of gesture can offer prognostic information about communication development.

Communication partners such as parents and other listeners can also shape language acquisition and development by paying attention to gestures used by children and translating their meaning into speech. This action reinforces gesture as a valid communication tool and also provides children with feedback and instruction about how to use their language. In this way, gesture plays a role in communication development by shaping language learning environments, specifically through influencing the way that communication partners respond to gestural communication attempts. Research suggests that parents who gesture more with their children, have children who in turn gesture more, and who go on to have larger receptive vocabularies later.

In addition to helping children learn language, gestures also appear to help with learning in other domains. Of interest is the fact that gesture can help individuals to show what they know about a topic. When children are asked to verbally explain their knowledge about something, they use gestures as part of their explanation. These gestures convey unique aspects of their knowledge not expressed in their speech. Thus, gesture can reveal information about cognitive reasoning and problem-solving skills that is not evident in speech alone. If educators / instructors can recognise, decode and respond to the information conveyed through gesture as well as through speech, they can gain insights into how to adjust teaching and support strategies to capitalise on individual needs and readiness to learn.

Gesture's role in creating language:

Gestures are used in conjunction with speech in a 'big picture', image-based way that complements the discrete, segmented form that speech takes (i.e. sounds, morphemes, words, sentences are combined together to form meaning). But, when only a manual modality is used to convey language, as in sign languages of the deaf, the signs and gestures used take on the same segmented quality seen in speech. In other words, sign languages consist of smaller segments (i.e. phonemes, morphemes, linguistic units, syntactic units), that need to be combined together just like in speech. The way that sign and gesture is used by native and non-native signers, can provide insight into how languages emerge and change.

Gesture's role in the clinic and the classroom:

Gesture may be used to assess children's knowledge in a classroom or clinic setting and enhance learning. When students are asked to use gesture as they explain their knowledge of something, this process of bimodal communication can lead to better understanding of the task and retention of information. Similarly, studies have shown that if verbal instruction provided by educators is accompanied by gesture, deeper learning can occur. Educators may therefore be in a position to use gestures intentionally in their classrooms, in a way aligned with best available evidence, to enhance student learning and retention.

What does this information mean for practice?

Gesture is an integral part of human communication that is used in various ways. Gesture use should be encouraged and supported, particularly in early stages of communication. Gesture supports language learning, has the potential to shape knowledge acquisition and cognition, and can enhance communicative interaction. No harm will come from using gesture alongside speech and current research evidence suggests that it is a powerful facilitative strategy for supporting communication development, particularly in young children and in education settings. Future research is needed to learn more about the specific ways in which gesture is used by different individuals and groups of people.

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