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Anthropology in Practice

Talking With Our Hands: The Significance of Gestures

By Krystal D'Costa on July 2, 2012

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New Yorkers are hand talkers. We often use gestures to add emphasis to our conversations; from pointing to direct tourists, or waving to demonstrate our exasperation with traffic, drivers, or pedestrians, or trying to interject—because New Yorkers don't interrupt!—we gesticulate. We're not the only people to do this, of course—gestures are an integral part of language.

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Arbib, Liebal, and Pika (2008) believe that gestures, via pantomime and protosigns, may have played a large role in the emergence of vocalization (protospeech) leading to the development of protolanguage (1054). Their hypothesis is based on the structure of the brain, specifically a mirroring of structures in the brain: near Broca's area, a region of the brain said to be involved in language production, is a region "activated for both grasping and observation of grasping" (1053). The proximity of a grasping region to a language region is intriguing. Individuals who have suffered damage to Broca's area have difficulties with language production. They can often understand others perfectly, but they have difficulty responding in all but the simplest of ways. Arbib and colleagues suggest that because damage to Broca's area also impedes the emergence of signed languages as well, the region should be understood in relation to multimodal language processes and not just vocalization. They believe this creates a strong case for understanding the place of gestures in the evolution of language.

Gestures are common to many species of monkeys and apes, however, usage seems to vary between captive and wild groups. For example:

- Siamangs have demonstrated at least 20 different tactile and visual gestures in captive groups (1).

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- Approximately 10 different gestures have been reported for wild orangutans and 30 have been described for captive groups.
- Captive gorillas use at least 30 different tactile, visual, and auditory gestures—but little is known about their gestures in the wild.

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- Chimpanzees also have a large repertoire of gestures in captivity, with about a dozen having been recorded in the wild.

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These numbers refer to entire populations. Within the group, an individual's use of gestures depends on age, sex, and rank. There are also group-specific gestures, such as:

> *"Offer arm with food pieces" in orangutans, "arm shake" in gorillas, and "punch" in bonobos are examples reported from captive groups, while "leaf clipping" and "grooming hand clasp" are described as group-specific gestures in wild chimpanzees (1057).*

Small, stable groups tend to have less intra-group variability than large, socially complex groups. Larger groups tend to have greater variability between members, requiring greater variety and variability in communicative means.

The higher number of observed gestures in captive groups also hints at an ability to learn (2). Basic forms of gestures and communication seem to be genetically preprogrammed (e.g., "chest beat" has been reported for gorillas that had never seen other gorillas). A process called ontogenetic ritualization may explain how gestures are learned—"a communicative signal is created by two individuals shaping each other's behaviors in repeated instances of an interaction over time," allowing behaviors to become signals (Arbib, Liebal, and Pika 2008: 1058). The example the authors provide is the "arm rise": a stylized gesture that chimpanzees use to signal that they are about to hit each other and initiate rough-and-tumble play (3). Gestures are also used referentially, indicating that they can be intentionally deployed to manipulate or direct the actions of others. Captive chimpanzees, for example, use the "directed scratch": a loud and/or exaggerated scratching motion to indicate where the grooming partner should focus attention (1057).

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This discussion supports the criteria by which gestures are judged to be language:

whether they are used intentionally or are side effects of emotional states

whether they are flexible

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whether they have an inherent meaning or whether the meaning is conveyed by social context

whether they are inherited or learned

whether they are used referentially

These criteria allow us to compare gestural communication between apes and humans. Referential gestures (or triadic gestures) begin to appear in prelinguistic children at around the age of 12 months. But even before this stage, children may demonstrate dyadic gestures, which direct attention to the actor. Chimpanzee infants begin to employ gestures around the age of 9 to 12.5 months, however, with few exceptions the majority of gestures used are dyadic. Attempts to teach apes to speak have not been very successful. Kanzi, a bonobo who spent the early years of his life observing his mother while she used a computerized keyboard, remains a rare success story. He learned many of the symbols (lexigrams) that his mother had not likely through exposure, which is similar to the way in which children learn to speak. They pick up on patterns from the behaviors of adults around them. His ability to understand English compares to a 2-year-old human child: He is able to combine two or three lexigrams or a lexigram and gesture, and order items (Arbib, Liebal, and Pika 2008: 1060).

His success aside, apes generally acquire symbols at a much slower rate when compared to human children. And despite being able to combine signs, the authors report that apes have not demonstrated the ability to employ syntax, which is key to language. The authors believe that gestures may have facilitated the transformation of imitation into communication, arguing that

> *the increased use of the hands in apes compared with body postures and facial expression in monkeys might be due to a shift from facial expressions (under less voluntary control) to more manual gestures (under voluntary control) over the course of evolution. Therefore, manual gestures may have played a role in the common ancestor of apes and humans as well (Arbib, Liebal, and Pika 2008: 1061).*

Manual gestures would have enhanced our ability to communicate, and possibly had an effect on vocalization as well (e.g., inflections that accompany certain motions) that would have added nuances to communication. Crossing ones fingers, for example, drives home the fervency of hope for some people. A raised index finger can convey the triumph of victory. And a shrug can signal despondency, uncertainty, or hesitation. Gestures mean something because we define them, so they reflect *our* nuances. This happens on all levels from the larger social order to the individual with personal motions that are a part of our personality. In this way, the smallest motion can have meaning as long as we agree on it.

Notes:

(1) Gestures can be arranged into three categories, depending on the way in which they are received and interpreted: auditory gestures use non-vocal sounds (e.g., clapping or using external objects to make noise), tactile gestures include physical contact with the recipient, and visual gestures are signs that have no physical contact (Arbib, Liebal, and Pika 2008: 1056).

(2) The authors correctly caution against overgeneralizing patterns observed in captive versus wild apes and monkeys, but studies suggest that the catalog of gestures is comparable between wild and captive groups with captive individuals seemingly using gestures with more frequency (Arbib, Liebal, and Pika 2008: 1058).

(3) Hitting is a normal part of play. The gesture signifies that the subsequent action should be regarded as play and not aggression, and sets the tone for an appropriate response.

Cited:

Arbib, M., Liebal, K., & Pika, S. (2008). Primate Vocalization, Gesture, and the Evolution of Human Language Current Anthropology, 49 (6), 1053-1076 DOI: 10.1086/593015

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ABOUT THE AUTHOR(S)

Krystal D'Costa

Krystal D'Costa is an anthropologist working in digital media in New York City. You can follow AiP on Facebook.

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