

From Unseen Animals to Theoretical Physics, Humans Have a Unique Ability to Communicate Absent and Abstract Concepts

October 25, 2023



Human [language](#) not only allows us to share our thoughts about the world around us, but also to discuss what *isn't* there. Our ability to use words and gestures to communicate information about absent and abstract concepts begins in infancy and could be what allows us to develop more abstract thinking as we age, wrote Elena Luchkina and APS Fellow Sandra Waxman (Northwestern University) [in *Perspectives on Psychological Science*](#).

“Language is pretty unique in its ability to facilitate detailed and highly nuanced communication about things that are absent and abstract,” Luchkina said in an interview with APS. This includes everything from animals and historical figures we’ve never seen before to complex mathematical concepts and theoretical physics, she continued.

The first evidence of these abilities begins to appear when [babies](#) are as young as 12 months old. For example, babies recognize the intentions behind people’s words and begin to link words and mental representations by the end of their first year of life, Luchkina and Waxman wrote.

By this age babies also understand symbolic gestures, such as pointing, the researchers explained. Not

only can they use another person's pointing to identify unseen objects that will appear there in the future, but they can use this gesture to make a request or direct someone else's attention to something.

"Some research suggests that gesture may be a part of our innate communication repertoire because it comes before language and, to a certain extent, allows us to communicate about things that are absent," Luchkina said.

Language, however, is more powerful than gesture, as it allows us to communicate detailed information about things that are absent or abstract, Luchkina said. For example, she offered, it would be much harder to say, "I remember her complicated argument," using gesture than to do so using sign language, which is distinct from gesture.

During the second year of life, children make remarkable progress in employing language for such communication. By age 2, they begin to talk about absent caregivers, engage in pretend play, and talk about other people's desire states ("she wants"), Luchkina said.

"Language is what gives us this reliable and frequent access to representations of absent things and to abstract ideas," Luchkina suggested, proposing that "without that anchor it would be really difficult to reliably access your abstract thoughts." For example, language-deprived deaf children who have not been taught to sign have been found to perform worse on abstract reasoning tasks than those with access to a [sign language](#), she noted. Additionally, apes use gesture, among other methods, to communicate with one another, but have been found to perform better on abstract reasoning tasks when they are language-trained.

Luchkina and Waxman would like to dig deeper into the connection between linguistic reference and abstract reasoning abilities. Longitudinal research that follows infants into childhood could help uncover the relationship between these skills, as well as potential interventions for children who struggle to develop them, the researchers wrote. Further research on the extent of apes' linguistic and gestural abilities, and how these may relate to conceptual learning, could also help shed new light on the connection between these abilities.

***Feedback on this article? Email apsobserver@psychologicalscience.org or login to comment.
Interested in writing for us? Read our [contributor guidelines](#).***

Reference

Luchkina, E., & Waxman, S. (2023). Talking about the absent and the abstract: Referential communication in language and gesture. *Perspectives on Psychological Science*. <https://doi.org/10.1177/17456916231180589>