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Hands in the Air: How Gesturing Helps Us to Think [Preview]

See Inside

Gestures reveal subconscious knowledge and cement new ideas

By Susan Goldin-Meadow

A teacher watches a fourth-grade student try to solve the equation $4 + 3 + 6 = + 6$. The child pencils 13 in the blank. "How did you get that answer?" the teacher asks. "I added the 4 and the 3 and the 6 and got 13," the child replies. But as the child is talking, he holds one hand under the 6 on the left and the other hand under the 6 on the right, indicating that the child has, at least implicitly, noticed the 6s on both sides of the equation. Thus, the teacher realizes, it is a small mental leap to see that these equal numbers would cancel each other out and that the remaining numbers on the left can be added to get the correct answer, 7. The teacher says, "A better way to solve the problem would be to add the 4 and the 3 and put that number in the blank." From then on, the child uses this grouping strategy to solve future problems.

In Brief

Congenitally blind people move their hands when talking, implying that we gesture not only for our listeners but for ourselves.

Common gestures include pointing, pantomiming actions and capturing abstract ideas by, say, moving a hand forward when talking about the future.

Children who are on the verge of mastering a task advertise this fact in their gestures.

Encouraging kids to use gestures can bring out their implicit knowledge and thus change the way they think.

In this interchange, which took place in my laboratory while my colleagues and I were conducting a study on gesture and learning, neither the teacher nor the student talked about the 6s. But the teacher saw a representation of the two 6s in the student's gestures, prompting the explicit instruction about grouping. If the student had not gestured in this way, the teacher might have suggested a different method of tackling the problem that might not have been so effective.

This article was originally published with the title Hands in the Air.

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Susan you highlighted a valid point. I think these gestures reflect the patterns of brain working and the happenings at the proprioceptive levels.

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