

Gesturing while talking helps change your thoughts

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Sometimes it's almost impossible to talk without using your hands. These gestures seem to be important to how we think. They provide a visual clue to our thoughts and, a new theory suggests, may even change our thoughts by grounding them in action.

University of Chicago psychological scientists Sian Beilock and Susan Goldin-Meadow are bringing together two lines of research: Beilock's work on how action affects thought and Goldin-Meadow's work on gesture. After a chat at a conference instigated by Ed Diener, the founding editor of [Perspectives on Psychological Science](#), they designed a study together to look at how gesture affects thought.

For the study, published in *Psychological Science*, a journal of the Association for Psychological Science, Beilock and Goldin-Meadow had volunteers solve a problem known as the Tower of Hanoi. It's a game in which you have to move stacked disks from one peg to another. After they finished, the volunteers were taken into another room and asked to explain how they did it. (This is virtually impossible to explain without using your hands.) Then the volunteers tried the task again. But there was a trick: For some people, the weight of the disks had secretly changed, such that the smallest disk, which used to be light enough to move with one hand, now needed two hands.

People who had used one hand in their [gestures](#) when talking about moving the small disk were in trouble when that disk got heavier. They took longer to complete the task than did people who used two hands in

their gestures—and the more one-handed gestures they used, the longer they took. This shows that how you gesture affects how you think; Goldin-Meadow and Beilock suggest that the volunteers had cemented how to solve the puzzle in their heads by gesturing about it (and were thrown off by the invisible change in the game).

In another version of the experiment, published in *Perspectives in Psychological Science*, the volunteers were not asked to explain their solution; instead, they solved the puzzle a second time before the disk weights were changed. But moving the disks didn't affect performance in the way that gesturing about the disks did. The people who gestured did worse after the disk weights switched, but the people who moved the disks did not—they did just as well as before. "Gesture is a special case of action. You might think it would have less effect because it does not have a direct impact on the world," says Goldin-Meadow. But she and Beilock think it may actually be having a stronger effect, "because gesturing about an act requires you to represent that act." You aren't just reaching out and handling the thing you're talking about; you have to abstract from it, indicating it by a movement of your hands.

In the article published in *Perspectives in Psychological Science*, the two authors review the research on action, gesture, and thought. Gestures make thought concrete, bringing movement to the activity that's going on in your mind.

This could be useful in education; Goldin-Meadow and Beilock have been working on helping children to understand abstract concepts in mathematics, physics, and chemistry by using gesture. "When you're talking about angular momentum and torque, you're talking about concepts that have to do with action," Beilock says. "I'm really interested in whether getting kids to experience some of these actions or gesture about them might change the brain processes they use to understand these concepts." But even in math where the concepts have little to do

with action, gesturing helps children learn—maybe because the gestures themselves are grounded in action.

Provided by Association for Psychological Science

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