

## Gesturing aids thinking, memory

**By Josh Schonwald**  
*News Office*

University researchers have a new explanation for why many people cannot seem to keep their hands still when they are talking.



*Susan Goldin-Meadow and her colleagues have discovered that gesturing while speaking aids a speaker's memory when explaining information that was previously learned.*

“Talking with our hands may actually make thinking easier,” said Susan Goldin-Meadow, the Irving B. Harris Professor in Psychology and the College.

A study conducted by Goldin-Meadow and three colleagues asked people to remember a list of letters or words while explaining how they solved a math problem. Goldin-Meadow found that the people who gestured while explaining remembered significantly more items than those who did not gesture.

The impact of the findings, she said, could herald a change in conventional manners. “Your grandmother may have been wrong in this instance. It may not only be OK to move your hands while talking, it may be good for you,” said Goldin-Meadow, whose research appeared in the article “Gesturing Lightens the Load” in the November issue of *Psychological Science*.

To understand the impact of gesture on cognition, Goldin-Meadow; Howard Nusbaum, Chairman and Professor in Psychology and the College; and project researchers Spencer Kelly and Susan Wagner, conducted a four-step experiment with 40 children and 36 adults.

The children were first asked to solve addition problems at a

blackboard, while the adults were asked to solve factoring problems. Second, after solving each math problem, participants were given a list of items (words for children, letters for adults) to memorize. Third, all participants were asked how they arrived at their solutions to the math problems. The participants were asked to explain their math answers following two conditions—"gesture permitted" and "gesture not permitted." Finally, after completing the math explanation, participants were asked to recall the list of items, as a way of measuring the cognitive load imposed by the explanation task.

The results on the memory task show that the adults and children remembered more than 20 percent more words and letters when they gestured while explaining how they solved the math problems, when compared to the condition when they did not gesture.

"These findings suggest that gesture reduces the cognitive load of explanation, freeing capacity that can be used on a memory task performed at the same time," Nusbaum said.

The researchers have several theories about why gesturing frees-up thinking resources.

One theory is that gesture can divide the work of an explanation by using visual, spatial or motor representations rather than just verbal representations. "This might allow gestures to facilitate information processing and reduce effort," Nusbaum said.

Gesturing also may enable access to certain words, thereby facilitating the speech process. Or, the researchers say, gesturing might help people organize information for the act of speaking.

"Gesturing could also play a role at all these levels," said Goldin-Meadow, who is exploring these and other hypotheses in her ongoing research into gesture and thought. "Whatever the mechanism, our findings show that gesturing can help to free up cognitive resources that can be used elsewhere to help a person think about something else."

Goldin-Meadow and Nusbaum are associates of the University's Center for Early Childhood Research, a program funded by the Robert R. McCormick Tribune Foundation.

---