

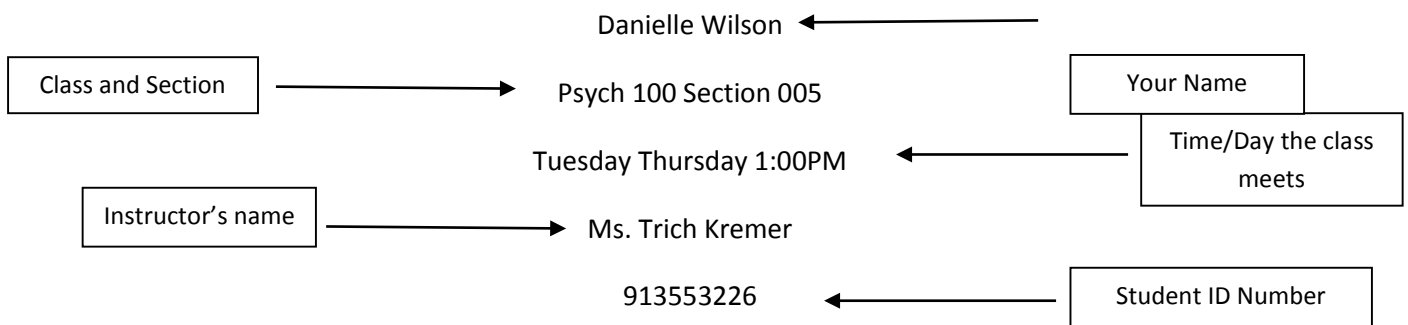
You will be writing a summary of a PEER REVIEWED research article.

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# EXAMPLE

# RESEARCH SUMMARY

You must include a **SEPARATE TITLE PAGE** that includes your instructor's name, section, time/day the class meets, your name, student id #



The paper must be typed, double-spaced, and have 1-inch margins on all sides. It should be a minimum of 300 words.

## Gesturing gives children ~~new ideas~~ Article Title

The purpose of this study was to show how gesture can enhance math performance. It was an experimental research study that looked at how gesture effects children's learning of math, particularly addition. The independent variable was gesture with three different conditions; gesture, no gesture, and partial gesture. The dependent variable of the study was the difference between pre- and post- test scores on a math task. The mediator variable was the speech being used during the lesson.

The lesson was where the independent variable changed. Participants were brought in for the study and were first given a demographics worksheet. Once their demographics were determined, they were given a pre-test to be aware of prior knowledge. Once the pre-test was graded, a lesson was given either with gesture that was grouping through two fingers, no gesture or a partial gesture which was just pointing. Once the lesson on the math was given, the post-test was given. The experimenters then determined a difference from pre- to post- tests scores.

What the article was about

The major conclusion to this study was that the gesturing condition showed higher math scores than the partially correct which was higher than the no gesture condition, showing that the gesturing actually aided in the child remembering the math task by using their body to perform it.

What the study found

However in this study there was no speech within the lesson. The only speech used was "This side is equal to the other side." This was the only speech used within the lesson. Since this was the only speech, the lesson was highly dependent on the use of the gestures, which in my opinion could be questionable. The questions arise, should gesture be tested with more verbal instruction. Does the gesture give the same effect? One may also ask, does this relate to older or younger kids who are learning a different type of math?

Your opinion of the study

↓ Reference page below ↓

You will need a complete reference page for your article. This can be done in APA Style.

## References

You will need a copy of the first page of the PEER REVIEWED article you chose after the reference page.

Goldin-Meadow, S., Cook, S. W, Mitchell, Z. A. (2009). Gesturing gives children new ideas about math.

*Current Directions in Psychological Science*, 17(5), 313-317.

Print out the first page of the article and put it behind the reference page



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## Gesturing Gives Children New Ideas About Math

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### Abstract

How does gesturing help children learn? Gesturing might encourage children to extract meaning implicit in their hand movements. If so, children should be sensitive to the particular movements they produce and learn accordingly. Alternatively, all that may matter is that children move their hands. If so, they should learn regardless of which movements they produce. To investigate these alternatives, we manipulated gesturing during a math lesson. We found that children required to produce correct gestures learned more than children required to produce partially correct gestures, who learned more than children required to produce no gestures. This effect was mediated by whether children took information conveyed solely in their gestures and added it to their speech. The findings suggest that body movements are involved not only in processing old ideas, but also in creating new ones. We may be able to lay foundations for new knowledge simply by telling learners how to move their hands.

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Why do people gesture when they talk? Perhaps people gesture for their listeners. After all, listeners can glean information from the gestures speakers produce (McNeill, Cassell, & McCullough, 1994). However, people also gesture when no one is watching (Alibali, Heath, & Myers, 2001; Krauss, Dushay, Chen, & Rauscher, 1995) and even when talking to blind individuals (Iverson & Goldin-Meadow, 1998). So, perhaps people gesture for themselves. Indeed, children who produce gestures modeled by the teacher during a lesson are more likely to profit from the lesson than children who do not produce the gestures (Cook & Goldin-Meadow, 2006). Gesturing may not only identify children as ready to learn (Goldin-Meadow, Alibali, & Church, 1993), it may actually help them learn.

However, to distinguish causation from correlation, researchers need to manipulate children's gesturing. Gesturing has been manipulated in studies of memory—children told to gesture when trying to recall an event do, in fact, remember more about the event than children prevented from gesturing (Stevanoni & Salmon, 2005). Gesturing has also been manipulated in studies of learning—children told to gesture when explaining how they solved a math problem learn more when later given instruction in the problem than children told not to gesture (Broaders, Cook, Mitchell, & Goldin-Meadow, 2007). These studies suggest that gesturing can play a role in memory and learning, but they do not specify a mechanism. The goal of this study was to explore the mechanism by which gesturing plays a role in learning.

One possibility is that the act of producing particular movements helps children focus on the information displayed in these movements. When children produce potentially meaningful movements in the right context, these movements may begin to take on meaning and, in this way, facilitate learning. If so, children should be sensitive to the specific information represented in the hand movements they produce and should learn when those movements

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Susan Wagner Cook is now at the University of Iowa.

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