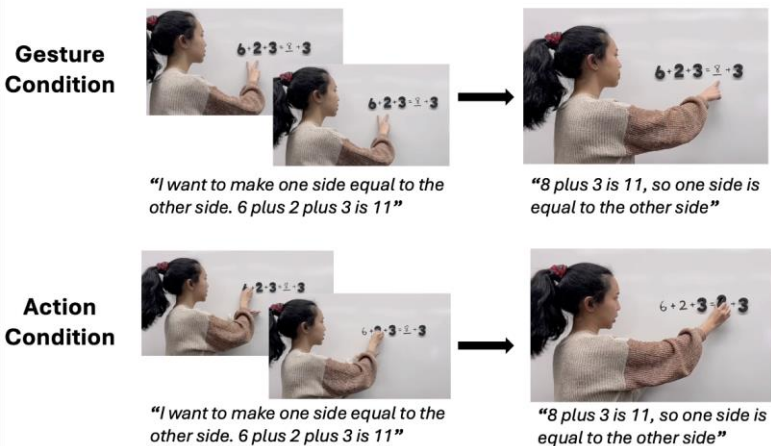


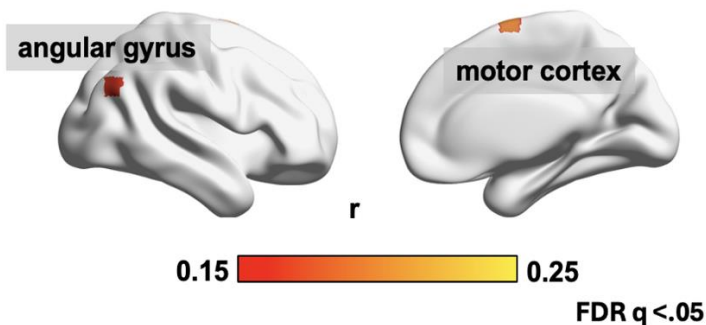
Gestures synchronize children's brains and support math learning

#2055420: *The neurobiological mechanisms underlying gesture's role in mathematical learning*

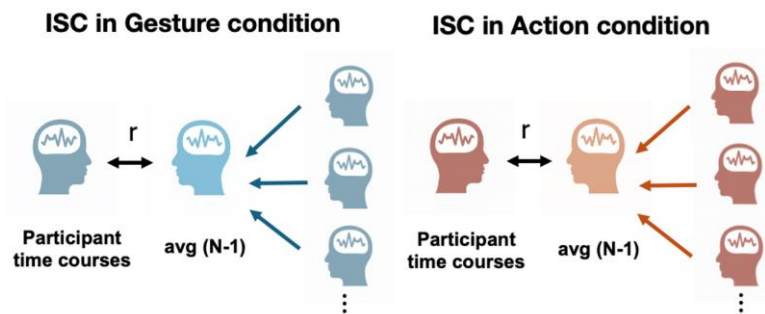
Gesture- vs. Action-based Instruction



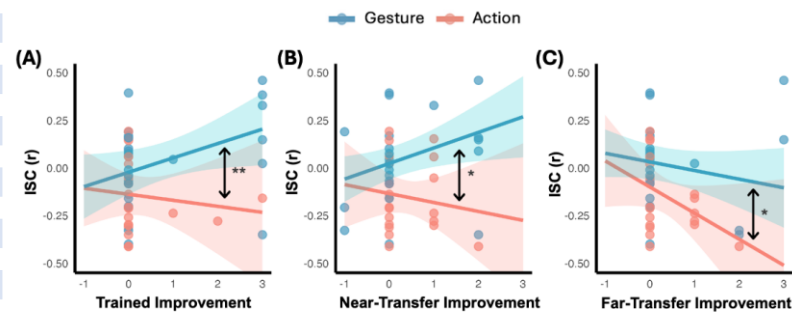
ISC is higher in right angular gyrus and right motor cortex when viewing gesture- vs. action-based instruction



fNIRS: Brain Synchrony Intersubject Correlation (ISC)



The **more synchronized** children were during the lesson, the more they improved after the **Gesture** lesson but not the **Action** lesson



Methods

fNIRS

Brain Synchrony

- 73 children, 8-10 yrs old (M = 9.11 yrs; 39 girls)
- Functional near-infrared spectroscopy (fNIRS)
- Watch gesture- or action-based instruction videos

Challenge Overcome

Naturalistic

How can fNIRS hyperscanning help us test whether children's own gestures boost learning and strengthen teacher-learner brain alignment?

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Marc G. Berman, Susan Goldin-Meadow

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