

ZMATH 2013e.00175

Alibali, Martha W.; Nathan, Mitchell J.; Church, R. Breckinridge; Wolfgram, Matthew S.; Kim, Suyeon; Knuth, Eric J.

Teachers' gestures and speech in mathematics lessons: forging common ground by resolving trouble spots.

ZDM, Int. J. Math. Educ. 45, No. 3, 425-440 (2013).

Summary: This research focused on how teachers establish and maintain shared understanding with students during classroom mathematics instruction. We studied the micro-level interventions that teachers implement spontaneously as a lesson unfolds, which we call micro-interventions. In particular, we focused on teachers' micro-interventions around trouble spots, defined as points during the lesson when students display lack of understanding. We investigated how teachers use gestures along with speech in responding to such trouble spots in a corpus of six middle-school mathematics lessons. Trouble spots were a regular occurrence in the lessons ($M = 10.2$ per lesson). We hypothesized that, in the face of trouble spots, teachers might increase their use of gestures in an effort to re-establish shared understanding with students. Thus, we predicted that teachers would gesture more in turns immediately following trouble spots than in turns immediately preceding trouble spots. This hypothesis was supported with quantitative analyses of teachers' gesture frequency and gesture rates, and with qualitative analyses of representative cases. Thus, teachers use gestures adaptively in micro-interventions in order to foster common ground when instructional communication breaks down.

Classification: C50 C70

Keywords: gesture; classroom communication; common ground; interventions; micro-interventions; language
doi:10.1007/s11858-012-0476-0