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Students whose STEM courses are taught using active learning perform better than those taught with traditional lectures. That was the top-line finding of a widely cited 2014 meta-analysis, and it has been borne out in many other studies since. While research suggests that lecturing remains the dominant form of STEM instruction, the studies on active learning have bolstered high-profile calls for change that a growing number of instructors have taken to heart in recent years.

A new paper suggests, however, that those studies are not as solid, nor their findings as clear-cut, as active-learning proponents would like. Its lead authors, Amedee Marchand Martella, a National Science Foundation postdoctoral research fellow in psychological and brain sciences at the University of California at Santa Barbara, and her father, Ron Martella, a professor in the College of Education at the University of Colorado at Colorado Springs, had long doubted that the evidence on active learning was strong enough to support the kinds of blanket directives — like “just stop lecturing.” — they were hearing.

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