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Classroom connectivity and Algebra 1 achievement: a three-year longitudinal study.

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Summary: Findings from three years of a longitudinal randomized control trial involving a national U.S. sample of Algebra 1 teachers and students are reported. The study examines the effects of a connected classroom technology (CCT) professional development and classroom intervention on student achievement when compared to classroom instruction with graphing calculators only. The theoretical framework suggests that active learning environments facilitated by CCT are likely to broaden the representational infrastructure of the classroom and to provide timely, targeted, and accurate feedback loops to improve formative assessment opportunities and thus student achievement in Algebra 1. In the first three years of this study, significant effect sizes on student achievement ranged from 0.19 to 0.37. These medium-sized effects are relatively rare for large-scale randomized experiments in education.

Classification: U53 U73 H33

Keywords: algebra; teaching; educational research; communication; classroom connectivity technology; CCT; wireless communication systems; educational media; instructional modes; formative assessment; information flow; ARS technology; audience response system; professional development; teacher education; achievement measurement; educational diagnosis