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Hegedus, Stephen J.; Tapper, John; Dalton, Sara

Exploring how teacher-related factors relate to student achievement in learning advanced algebra in technology-enhanced classrooms.

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Summary: In this study, we examine the relationship between contextual variables related to teachers and student performance in Advanced Algebra classrooms in the USA. The data were gathered from a cluster-randomized study on the effects of SimCalc MathWorlds[®], a curricular and technological intervention as a replacement for Algebra 2 curriculum, on student learning of Algebra 2 content. Conditional measures (teacher background characteristics) and instructional measures (self-reported instructional preferences, stances, and classroom practices) were subjected to a variety of empirical analyses to discern their relationship to student learning. Researchers examined both the overall effect of teacher contextual variables on student learning and the specific effect of SimCalc on both teacher instructional measures and student performance. There is evidence to support that teachers who use the SimCalc curriculum value classroom communication, deep understanding of math concepts, and support for both routine and non-routine problems.

Classification: U70 C30 C20 H20 H30 I20

Keywords: algebra; student achievement; dynamic representations; connectivity; teacher contextual variables
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