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**Wiburg, Karin; Chamberlin, Barbara; Valdez, Alfred; Trujillo, Karen; Stanford, Ted**  
**Impact of Math Snacks games on students' conceptual understanding.**

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Summary: This paper shares the findings of an experimental study measuring the effect of four educational games and related inquiry-based activities on students' understandings of ratios, coordinate plane, and number systems including fractions and decimals. In this randomized, controlled, quasi-experimental design, classrooms were randomly assigned to one of two conditions, Group A or Group B. In Phase One, Group A received the Math Snacks Intervention for five weeks, in addition to the regular district mathematics curriculum, and Group B received only the district's approved mathematics curriculum. Using a delayed treatment model in Phase Two, Group B received the five-week Math Snacks Intervention with the regular curriculum and Group A received only the district's approved mathematics curriculum. Both groups were assessed three times using a carefully designed test with both multiple choice and open-ended items: prior to any interventions, at the end of Phase 1 and at the end of Phase Two. The mean gains of students receiving the Math Snacks Intervention were significantly higher than the group not receiving the Intervention. In addition, students who participated in the Phase One Intervention maintained their learning gains for seven weeks after the end of their Intervention.

*Classification:* U60 U70

*Keywords:* concept formation; game-based learning; research; effectiveness; educational games; computer as educational medium; multimedia; video games; apps; measurement; proportion; coordinates; number systems; fractions; decimal numbers; arithmetic; visual representations