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Measurement in learning games evolution: review of methodologies used in determining effectiveness of Math Snacks games and animations.

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Summary: This article captures the evolution of research goals and methodologies used to assess the effectiveness and impact of a set of mathematical educational games and animations for middle-school aged students. The researchers initially proposed using a mixed model research design of formative and summative measures, such as user-testing, observations, interviews, and standardized test scores. Over the course of the 5 years, researchers expanded on these qualitative and quantitative methods by adding additional research methods based on additional potential opportunities for formative testing, additional potentials areas of impact, and refining research methodologies. Based on the findings from these methods, the researchers offer recommendations for approaches to evaluating educational game design and animation that support student learning. The authors review the methodologies used (observations, focus groups and panel discussions, pre- and post-tests, self-report surveys and embedded data); environments in which the methods were used (Learning Games Lab Think Tanks, classrooms, summer camps, annual advisory reviews); and three studies (one pilot and two final studies). The researchers close with recommendations for design and evaluation strategies of game- and animation-based learning.

Classification: U50 U70

Keywords: learning games; research methodologies; animations; game development

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