

ZMATH 2016f.01426

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Mathematics education and manipulatives: which, when, how?

Aust. Prim. Math. Classr. 21, No. 1, 12-17 (2016).

Summary: This article proposes a framework for classroom teachers to use in making pedagogical decisions regarding which mathematical materials (concrete and digital) to use, when they might be most appropriately used, and why. Two iPad apps (“Area of Shapes (Parallelogram)” and “Area of Parallelogram”) are also evaluated to demonstrate the usefulness of the framework in assisting teachers to evaluate digital resources in terms of their pedagogical, cognitive and mathematical fidelity. The Area of Shapes (Parallelogram) app consists of four components; an interactive lesson, a virtual geoboard, a multiple-choice test, and a challenge component. The Area of Parallelogram app consists only of a lesson with voice-overs and diagrams explaining to students how to determine the area of a parallelogram. (ERIC)

Classification: U70 U60 G40

Keywords: manipulative material; geometry; shapes; area