Title

Optimizing Mathematic Learning: Effects of Continuous and Nominal PracticeFormat on Transfer of Arithmetic Skills

Permalink

https://escholarship.org/uc/item/3jp4w3sk

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 39(0)

Authors

Kalish, Charles

Meng, Rui

Seng, Ayon

et al.

Publication Date

2017

Peer reviewed

Optimizing Mathematic Learning: Effects of Continuous and Nominal Practice Format on Transfer of Arithmetic Skills

Charles Kalish

University of Wisconsin-Madison, Madison, Wisconsin, USA

Rui Meng

University of Wisconsin-Madison, Madison, Wisconsin, USA

Ayon Seng

University of Wisconsin-Madison, Madison, Wisconsin, USA

Percival Matthews

University of Wisconsin-Madison, Madison, Wisconsin, USA

Abstract: Should we give learners a lot of practice with a few problems, or a little practice with a variety of problems? The best practice set depends on the way people are learning. We describe two models people employ when learning arithmetic problems. We show that features of the task environment influence model use. When problems are presented in a purely symbolic format, people learn an item-specific model. When the task format linked problems to representations of magnitudes, people learn a continuous model. We also test the effects of different practice sets on learning. In both formats people learned the practice sets well with a few repeated examples. With a continuous magnitude format people showed better transfer with a wide variety of practice problems. Variety led to poor learning in the symbolic format. In ongoing research we are attempting to identify the optimal practice set for each type of learning model.