Learning and Instruction

Volume 16, Issue 1, February 2006, Pages 1-11

Rapid cognitive assessment of learners' knowledge structures â˜†

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https://doi.org/10.1016/j.learninstruc.2005.12.002

Abstract

Traditional assessment methods are not always suitable for diagnosing learners' knowledge structures at different levels of their expertise. This paper describes an alternative schema-based rapid assessment technique and its application in the area of arithmetic word problem solving. The technique is based on an assessment of the extent to which working memory limits have been altered by solution schemas held in long-term memory. In an experiment (NÂ =Â 55, Grade 8), the average test time was reduced by a factor of 2.8 in comparison with a traditional test, with a significant correlation of 0.72 between scores on both tests.

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Keywords

Cognitive diagnosis; Cognitive load theory; Working memory; Arithmetic word problems; Rapid assessment of expertise

â˜† The author wishes to thank Anne Holder, Romanta Spokas, and Mount St Joseph College (Milperra) for help in conducting experimental studies. The paper was prepared during the appointment of the author as an adjunct senior lecturer at the School of Education, the University of New South Wales.

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