

ZMATH 2012f.01119

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Effects of feedback in an online algebra intervention.

Technol. Knowl. Learn. 17, No. 1-2, 43-59 (2012).

Summary: The design and arrangement of appropriate automatic feedback in digital learning environment is a widely recognized issue. In this article, we investigate the effect of feedback on the design and the results of a digital intervention for algebra. Three feedback principles guided the intervention: timing and fading, crises, and feedback variation. The intervention aims at improving algebraic expertise and is deployed in fifteen grade 12 mathematics classes in nine secondary schools. Results show that the use of feedback timing and fading, the creation of crises and feedback variation facilitates the acquisition of algebraic expertise, and that relevant feedback fosters algebra learning by decreasing the number of attempts needed for a task while improving the scores. We conclude there is potential in applying these design principles in an online algebra education design.

Classification: U54 H34 D64

Keywords: algebra; design; expertise; feedback; formative assessment; ICT; skills

doi:10.1007/s10758-012-9191-8