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**Design of the game-based learning environment “Dudeman & Sidegirl: operation clean world,” a numerical magnitude processing training.**

Torbeyns, Joke (ed.) et al., Describing and studying domain-specific serious games. Cham: Springer (ISBN 978-3-319-20275-4/hbk; 978-3-319-20276-1/ebook). Advances in Game-Based Learning, 9-26 (2015).

Summary: Numerical magnitude processing has been shown to play a crucial role in the development of mathematical ability and intervention studies have revealed that training children’s numerical magnitude processing has positive effects on their numerical magnitude processing skills and mathematics achievement. However, from these intervention studies, it remains unclear whether numerical magnitude processing interventions should focus on training with a numerical magnitude comparison or a number line estimation task. It also remains to be determined whether there is a different impact of training symbolic versus nonsymbolic numerical magnitude processing skills. In order to answer these two questions, we developed four game-based learning environments, using the storyline of “Dudeman & Sidegirl: Operation clean world”. The first two game-based learning environments comprise either a numerical magnitude comparison or a number line estimation training and the last two game-based learning environments stimulate either the processing of symbolic or nonsymbolic numerical magnitudes.

*Classification:* U70 F30 A20 A80

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