
How do action video games improve reading performance? Theoretical framework and design principles of an educational software, based on visuo-attentional training

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Résumé

Recent studies suggest that dyslexic children who have action video game experience have improved visual attention and, consequently, improved reading skills. Moreover, some studies show that the visuo-attentional abilities of pre-readers strongly predict their future reading level. Action video games could therefore be an efficient training tool to improve reading acquisition, and an appropriate one thanks to their natural motivational quality. However, despite substantial research about the development of visual attention through video games, the attentional dimensions they train remain to be identified. Therefore, our objective is to identify what attentional dimensions are involved in reading acquisition and to design a video game to train them specifically. We target two attentional components: the visuo-attentional span and attentional shift, which we aim to enlarge and accelerate, respectively. We will both present a theoretical framework and design principles for the implementation of an educational video game. Its gameplay is based on visual identification and search tasks and its difficulty level is adaptively set to user performance. Our game is designed for grade 1 to grade 3 classes, and will be tested in a longitudinal study.

Mots-Clés: Educational software, Visual attention, Reading acquisition, Video games.

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