

عنوان مقاله:

The Dynamic Difficulty Adjustment of a Neurofeedback-Based Cognitive Game to Make a Help to Treatment of Attention Deficit Hyperactivity Disorder

محل انتشار:

مجله پژوهش در علوم توانبخشی، دوره 15، شماره 1 (سال: 1398)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Introduction: Attention deficit hyperactivity disorder (ADHD) is one of the most prevalent neurological disorders among the children and adolescents. Neurofeedback-based exercises, as a new method in non-pharmacological treatments, can help to improve their performance by modifying existing abnormalities in some of the brain frequency bands of these children. The aim of the present study was to develop and design a computer game as a platform for neurofeedback exercises by employing dynamic difficulty adjustment in the game design. **Materials and Methods:** This study was carried out to evaluate the dynamic difficulty setting in the game and measuring the satisfaction of play with dynamic difficulty versus static difficulty in 4 sessions on 6 participants of 7 to 12 years. They graded their experience in each session from 1-10 depending on the amount of enjoyment. Then, 2 boys of 12 and 13 years with ADHD participated by playing the game for 10 sessions. **Result:** There was a significant difference between the participants' satisfaction with dynamic difficulty versus static difficulty ($P = 0.002$). Moreover, the game had a positive impact on improving brain function in children with ADHD. **Conclusion:** The results showed that children were attracted and motivated to use the game for treatment. Adjusting the challenges based on the individual skills maintained the user's motivation from the beginning to the end of the game, and enhanced user's enjoyment and motivation to continue the therapy.

کلمات کلیدی:

(Attention deficit hyperactivity disorder (ADHD), Computer games, Neurofeedback, Dynamic difficulty adjustment (DDA

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