

Application of invisible playground theory to assistive technology design for motivating exercise within activities of daily living

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ABSTRACT

Regular exercise promotes safe mobility for people affected by stroke, multiple sclerosis, and other disability related health conditions. It is also important for the prevention of falls among older people. Recent research investigates the use of indoor technology such as virtual reality (VR) and games to support and motivate regular exercise. Other research considers the use of mobile and wearable technology to track and promote exercise within the home and outdoors. In this paper we propose an approach that uses ideas from both contexts to develop a more persistent connected health system for encouraging more enduring exercise associated behaviour change. We utilise gameful design principles and play research to blend home-based VR and Serious Games with wearable, mobile tracking and reminder system approaches that are integrated into activities of daily living. In particular, we utilise ideas about the Invisible Playground from play theory to frame our interactive multi-modal exercise system. Our hypothesis is that by establishing a gamified, information rich feedback loop between structured system based exercise indoors and tracked activities of daily living outdoors, that motivation to exercise regularly may be improved. In this paper we summarise key relevant literature, discuss the Invisible Playground, and present the system architecture, APPRAISER, which will be used for the system development.

Full papers will be published in the Conference Proceedings and will be freely available to delegates at the conference and online on September 20, 2016.