Open rehabilitation initiative: design and formative evaluation

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ABSTRACT

Development and testing of virtual environments for rehabilitation is a lengthy process which involves conceptualization, design, validation, proof concept testing and ultimately, if appropriate, randomized controlled trials. Ironically, once vetted, many of these VEs are not available to clinicians or their patients. To address the challenge of transferring research grade technology from the lab to the clinic the authors have created the Open Rehabilitation Initiative. It is an international independent online portal that aims to help clinicians, scientists, engineers, game developers and end-users to interact with and share virtual rehabilitation tools. In this paper, the conceptualization, development and formative evaluation testing are described. Three groups of developers of VEs (n=3), roboticists who use VEs for robot interactivity (n=10) and physical therapists (n=6) who are the clinicians end-users participated in the study. Interviews, focus groups and administration of the SUS were used to assess acceptability. Data were collected on three aspects, 1) discussion of what a resource might look like, 2) interaction with the site, and 3) reaction to the proposed site and completion of the SUS. Interviews and focus groups were recorded and transcribed. Data from the SUS was analyzed using a One-way ANOVA. There was no significant difference by groups. However, the clinicians' mean score of 68 on the SUS was just at the acceptable level, while the developers and roboticists scored above 80. While all users agreed that the site was a tool that could promote collaboration and interaction between developers and users, each had different requirements for the design and use. Iterative development and discussion of scaling and sustaining the site is ongoing.