Virtual Reality-based Script Training for Rehabilitation of Functional Communication of Cantonese Speakers with Aphasia: Preliminary Findings

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Abstract

Background

Aphasia, an acquired language impairment secondary to neurological damage, limits one's participation in daily activities and affects their quality of life (Code & Herrmann, 2003). Researchers have been keen on utilizing technology (e.g., virtual reality) to enhance the treatment outcomes of speech-language therapy (SLT). The current study aimed to investigate the feasibility and preliminary efficacy of using VR in script training (Youmans et al., 2005), an SLT that enhances verbal functional communication via repeated practice of personalized content in different contexts.

Method

A total of 26 PWA would be included in the whole study. PWA were randomly assigned to receive computerized script training with or without VR. Performance on their script production, severity of language impairment, and verbal functional communication was measured before, immediately after treatment, and 8-week post-treatment. Computerized script training was adapted from Cherney et al. (2008). In the VR treatment group, PWA fitted with a head-mounted display practiced the scripts within an immersive environment while PWA in the non-VR group practiced the scripts with a computer screen.

Results

Based on the first cohort of the six PWA who completed treatment and assessment, both treatments resulted in significant improvement in trained scripts: a large effect size of 10.25 (Cohen's d) and 8.12 had been obtained in VR and non-VR groups, respectively. Cybersickness in the VR group was minimal and PWA's acceptability to the VR-based treatment was satisfactory.

Discussion

Initial findings from the study have provided preliminary evidence supporting the feasibility and efficacy of VR-based computerized script training.

References

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