Successful Remote Delivery of a Treatment for Phonologic Alexia via Telerehab

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Introduction

A growing body of literature supports the effectiveness of remote delivery of rehabilitation services, i.e., telerehab. The verbal and visual nature of aphasia treatments makes them ideally suited for this method of delivery. Research examining the remote implementation of treatments for aphasia and alexia is in its infancy. The present study investigated the remote delivery of a validated treatment for phonologic alexia (PhA).

PhA is characterized by difficulty reading pseudowords and a part-of-speech effect in which nouns and adjectives are read better than verbs and functors. Friedman and colleagues have reported a successful treatment approach for this deficit, known as Semantic Mediation (SemMed; Friedman, Sample & Lott, 2002), in which problematic words are paired with non-problematic homophonic words. The current study aimed to investigate the feasibility and effectiveness of the SemMed treatment delivered via telerehab.

Method

Subjects. Participants BLN and ESM both presented with nonfluent aphasia and phonologic alexia.

Stimuli. For each subject, three sets of 20 target items were selected from a larger list. Targets were words that the subject had been unable to read correctly on at least 2 of 3 baseline tests, and that had homophonic or near-homophonic words that the subject was able to read aloud or repeat. For each subject, Sets 1 and 2 were trained sequentially, while Set 3 remained untrained.

Equipment. IBM ThinkPad notebook computers equipped with hands-free noise cancellation microphones and built-in video cameras were pre-loaded with home-practice software, videoconferencing software (http://www.vidyo.com), and the application LogMeIn (www.logmein.com), which allowed researchers to control participants’ computers remotely. The treatment software was loaded onto the researchers’ computer.

Procedure. Treatment was conducted three times per week for approximately one hour. An audio/video connection was established to begin each treatment session, enabling the researcher and subject to see and hear each other, and the researcher to present stimuli on the subject’s computer screen. Following each session, the researcher programmed the participant’s computer for “home practice.” Home-practice results were automatically emailed to the researcher when the subject

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exited the application.

**Results.** Once Set 1 and Set 2 had been trained to criterion or plateau, oral reading accuracy on all three sets was assessed on three separate occasions. Both subjects significantly improved their reading of both trained sets as compared to baseline (all p’s < .001, Figure 1).

**Discussion**

Training using the SemMed paradigm was successful for both subjects using a remote method of delivery, and results were equivalent to previous investigations of in-person SemMed treatment. Data recorded with this system enabled close tracking of home practice behavior. Both subjects expressed considerable satisfaction with the telerehab system in a post-treatment interview. This study provides encouraging evidence that treatment for alexia via telerehab is both feasible and effective, while providing advantages over in-person treatment in convenience, home practice monitoring, and elimination of time, expense, and energy spent in travel.
References


http://www.vidyo.com

www.logmein.com