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Comparing fixed- and randomized-interval spaced retrieval in anomia treatment

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Abstract

Spaced retrieval (SR) has recently been modified to target anomia in persons with aphasia (PWA). It relies on a strict management of the inter-stimulus interval (ISI) where the time between stimulus presentations is doubled or halved based on response accuracy. Although SR is successful in treating anomia, it remains to be studied whether the strict ISI management is necessary. The present study compared fixed-interval spaced retrieval (FISR) to randomized-interval spaced retrieval (RISR) in anomia treatment. Using alternating treatments single subject design, three PWA were trained to name 30 target items. Although both treatments were successful, the present data did not reveal one approach as superior even though fewer FISR sessions were needed and more FISR items were maintained on the post-treatment probes. This difference was only minimal suggesting that a less stringent stimulus schedule, as used in RISR, is sufficient for successful treatment outcome.

Learning outcomes: Readers will be able to describe the spaced retrieval treatment approach using both fixed- and randomized-interval stimulus schedules, as well as applications of this technique in the treatment of anomia in aphasia.

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1. Introduction

Anomia, or an impairment of word retrieval, is commonly targeted in aphasia therapy, due to the frequency of its occurrence and influence on communicative effectiveness. It is therefore important that approaches to anomia treatment be effective and realistic for use in

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the clinical setting. Several approaches, such as auditory stimulation and cueing techniques, have been described as anomia treatments for persons with aphasia (for review see Nickels, 2002). Recently, spaced retrieval (SR), a memory treatment, was modified for this purpose, as well (Brush & Camp, 1998; Fridriksson, Holland, Beeson, & Morrow, 2005). SR was originally described by Landauer and Bjork (1978) as a strategy to improve memory in cognitively intact persons. It involves presentation of stimuli at increasing time intervals to improve retention and recall of specific information over extended periods of time. Following a correct response, the length of the interval until the next stimulus presentation is doubled. When an incorrect response is made, the participant repeats the correct response after the clinician and the inter-stimulus interval is decreased by half. Camp and Schaller (1989), along with several others, adapted the approach and used it with individuals with dementia. Bourgeois et al. (2003) used SR to train the use of external memory aids as compensatory strategies in this population. Others have successfully trained persons with dementia to recall compensatory strategies and specific, personally relevant information (Brush & Camp, 1998; Davis, Massman, & Doody, 2001; McKittrick & Camp, 1989; Stevens, O'Hanlon, & Camp, 1993). In addition, SR has been used effectively to treat anomia in this population (Abrahams & Camp, 1993; Brush & Camp, 1998; McKittrick & Camp, 1993). Using the SR technique, Abrahams and Camp (1993) trained two persons with dementia to name common objects within three sessions with retention of learned items continuing for several weeks. Participants also demonstrated generalization of learned targets from the trained black-and-white drawings to the real objects.

Although anomia is common to both dementia and aphasia, the naming impairments observed vary with regard to the underlying cognitive mechanisms associated with each disorder. Based on positive results in dementia, the scope of SR has been broadened to include persons with aphasia (Brush & Camp, 1998; Fridriksson et al., 2005). Brush and Camp (1998) utilized the SR treatment approach with two persons who suffered a stroke within 1 year of treatment onset; however, a comprehensive profile was not provided for either participant. Nevertheless, based on the information provided, it seems that one of these two participants had aphasia. Using the SR approach, this person was trained to use two compensatory techniques to improve naming. Following 1 week of training, this participant appropriately employed the targeted techniques, and continued to do so after treatment end. This suggests that persons with aphasia following stroke can be trained to recall specific information using the SR technique; however, these data do not specifically address the use of SR to improve naming of specific targets in aphasia.

To address this issue, Fridriksson et al. (2005) compared SR and cueing hierarchy (CH) in the treatment of anomia in three persons with aphasia utilizing a single-subject design. The CH approach utilizes the presentation of cues, increasing in strength. Weak cues include the initial presentation of the pictured stimulus whereas a strong cue would include a phonemic cue or the repetition of the target. Results revealed that for two of the three participants, fewer sessions were required to master SR compared to CH items. The third participant needed one more SR than CH session to master all items. After the completion of each treatment phase, post-treatment probes were completed at 3-, 6-, and 12-weeks to assess maintenance of mastered items. The total number of SR items named correctly across the three treatment probes was 94 compared to 70 CH items. The overall results

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