

ABSTRACT OF MASTER'S THESIS

Encoding and Storage Components of Verbal Working Memory as Revealed by a Factorial Design

by

Jason Steffener

In this fMRI study, we investigate the contributions of frontal and posterior brain regions to verbal working memory. We used a two-factor design with low and high memory load (2 and 5 letters) and short and long delay (4 and 12 secs.) as factors. Based on reports in the literature, we expect activity in the following frontal and parietal brain regions of interest (ROIs): Brodmann areas (BA) 6, 9, 46, 44, 45, 7 and 40. The auditory task consisted of 32 trials, each trial consisting of storage, delay, and probe conditions. The storage condition either high or low was followed by a short or long delay period, and always by a 2 sec. probe. The design allowed us to explore the interaction and main effects of the two factors. The interaction terms revealed involvement in the caudate and BA 6 and 7. The main effects revealed activity in BA 6, 9, 32, 40, 44, cerebellum, thalamus, and caudate. The results of this study support the literature and offer more insight into previous findings.

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GITC -Room 3720

All are welcome to attend!