Title (max 85 characters): Mental Workspace Network Recruitment for Auditory Stimuli

Description (max 250 words):

A previous study in our lab found that the processing of visual imagery is distributed across regions of the mental workspace network. Such areas include the occipital cortex, posterior parietal cortex, precuneus, posterior inferior temporal cortex, dorsolateral prefrontal cortex, and frontal eye fields. Depending on the task and particular input, classifiers were made for each region, and it was possible to cross-classify particular visual stimuli and operations across these regions. In our next project, we would like to see if this mental workspace has core areas for auditory processing and if similar cross classification can occur with auditory stimuli. Instead of the occipital cortex, the auditory cortex would be a region of interest, along with the other five. We would pair various auditory stimuli with visual cues and test recall of the auditory cues. The study would see if the mental workspace regions are engaged by auditory stimuli, and if the patterns in each region caused by the auditory stimuli can be cross-classified with each other. The mental workspace has shown flexibility in doing this with visual stimuli, and in theory is involved in the maintenance and manipulation of sounds. To implement the study, a program would be written to present the stimuli, and we will collect structural and functional scans by fMRI as participants respond to their memory and maintenance of the stimuli. Patterns of activation in the regions of interest would be used to make classifiers, and cross-classification will also be tested.