Functional analyses and function-based treatment are often predicated on effective stimulus control. In functional analyses, successful multi-element designs require that, as conditions rapidly change, stimuli effectively evoke the response so that the response can contact the contingency. Once the function of behavior has been determined, treatments like functional communication training may require signaled extinction components to ensure that new responses do not decrease in strength when caregivers are unable to provide reinforcing stimuli. This presentation will cover data from two studies in my lab. The first is a study evaluating the impact of researcher-programmed discriminative stimuli on functional analysis results among older adults with neurocognitive disorders. The second is a study evaluating the role of visual and auditory stimuli on a functional communication treatment, with periods of extinction for both the communicative response and the challenging behavior, for adults with developmental disabilities.