Title: Comprehensive Assessment of Visual Perceptual Skills in ASD

Abstract: Previous studies have demonstrated a perceptual bias to local vs. global features in individuals with autism spectrum disorder (ASD); however, results across this area of research are mixed and suggest that a local bias may not be present in all individuals with ASD across all contexts. Current methods commonly utilize paradigms that specifically assess local/global processing (i.e. Navon figures, embedded figures) and little is known regarding performance of individuals with ASD on standardized tests of visual perception. The current research emphasizes the use of a standardized perceptual battery, the Test of Visual Perceptual Skills (TVPS), and the comprehensive characterization of individual differences across perceptual subskills. Our reported results highlight the use of a quantitative approach and the dimensional assessment of ASD traits and show a significant linear relationships between individual differences ASD traits and performance on the TVPS Figure-Ground subtest, which requires an individual to locate a smaller figure within a larger, more complex figure. Additionally, we computed a response dispersion index (RDI) metric that quantifies variability in item-level responses across individuals. Results of our item-based analysis indicate a significant relationship between RDI scores on the TVPS Figure-Ground subtest and quantitative ASD traits, with less variable response patterns being associated with increased ASD symptoms. Results reported here emphasize the need for quantitative assessment of autism traits and may explain why findings regarding a local bias in ASD are mixed, as they may be influenced by the trait distribution of a given sample of participants. We show that the TVPS Figure-Ground subtest captures important visual perceptual differences that are associated with the presence of autism traits using both overall and item-level performance metrics.