

Title: Predictors of children's sentence perception performance**Author: Jessica Walker and Anna Creighton****Sponsors: Christopher M. Conway and Joanne Deocampo, Department of Psychology**

Introduction: Recent findings suggest deaf children with cochlear implants (CIs) do not use sentence context to help perceive spoken words (Conway et al., 2014). This indicates that children with CIs may understand language primarily using bottom-up processes, recognizing words separately and failing to integrate them to formulate meaning for the entire sentence. However, typical-hearing (TH) children likely use both bottom-up and top-down processing during sentence perception (SP). Top-down processing involves using stored information to gather meaning, which facilitates perception of individual words. In the current study, we examined whether top-down information (semantic knowledge) would predict SP abilities in TH children.

Method: Thirty-one children (ages 7-12) completed a SP task, in which they listened to and repeated recorded sentences that differed in volume (31dB and 35dB) and word predictability (High, Low and Zero). Language ability was measured using two subtests of the Comprehensive Assessment of Spoken Language. Vocabulary was assessed using the Peabody Picture Vocabulary Test 4th edition (PPVT-IV). Intellectual ability was measured using the Block Design subtest of the Wechsler Intelligence Scale for Children.

Results: Stepwise multiple regressions suggested Block Design, vocabulary, and age were significant predictors of SP ability. The best predictor of performance on the Zero Predictability sentences was Block Design, with the only other significant predictor being age. For the Low and High Predictability sentences, the significant predictors were PPVT-IV and age; however, age was a better predictor at the lower volume than higher.

Conclusion: Overall, the results suggest vocabulary, spatial intelligence, and age are good predictors of the ability to perceive and repeat sentences in TH children. The role of semantic (vocabulary) knowledge during SP supports the idea that TH children rely upon top-down processing when perceiving degraded sentences. The relationship between spatial intelligence and Zero Predictability scores suggests an underlying skill or trait that contributes to both spatial ability and the ability to perceive unrelated words. This research will continue by including children with CIs to explore cognitive differences in SP strategies.