Working memory performances do not seem to correlate with attentional behavior for iconic gestures in speech comprehension: preliminary results

Kandana Arachchige K.G., Blekic, W., Simoes Loureiro, I., & Lefebvre, L.

Department of Cognitive Psychology and Neuropsychology, University of Mons, Belgium

Iconic gestures (IG) convey meaning semantically related (i.e., congruent) to the speech they accompany. Studies on visual attention (VA) showed that listeners fixated mainly the speaker's face and minimally IG. However, listeners appear to benefit from the presence of IG, particularly when presented with degraded speech. Recent studies have suggested an involvement of verbal and visuospatial working memory (WM) in the sensitivity to gesture-speech integration. The present study explores whether verbal and/or visuospatial WM performance could explain attentional allocation to IG in clear and degraded speech. One hundred and twenty-eight healthy French-speaking participants (35 men; M_{age} = 21.34; SD = 0.21) took part in the study. They first completed two WM tasks; the Digit Span Task (DST) and the Block Tapping Test (BTT). Then, fitted with an eye-tracking device, they performed a computerized task where they were simply asked to observe videos of an actor uttering short sentences and performing an IG. Regression analysis showed that in the presence of congruent IG and clear speech, performances at the BTT explained 3,9% of dwelling time on IG (R^2 = .039, $F_{(1,126)}$ = 5.11; p = .02). No other result was significant. While the presence of an association between visuospatial performances and VA to IG could be consistent with previous authors suggesting the creation, by IG, of a visuospatial context affecting language processing, globally, these results suggest an absence of relation between verbal/visuospatial performance and VA to IG. A subsequent study could investigate whether executive WM capacity could predict VA to IG.