Beat gestures favour word recall in 3- to 5-year-old children
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In conversation speakers accompany speech with simple hand and body motions that are typically aligned with prosodic heads and edges. These beat gestures have been shown to be strongly correlated in speech with the presence of acoustic cues of prominence (Krahmer & Swerts, 2007) and to have similar functions as prosody, e.g. information highlighting (Loehr, 2012; Wagner, 2014). Moreover, the presence of beat (and iconic) gestures has been found to help adults to recall information (So, Chen-Hui & Wei-Shan, 2012).

With respect to acquisition, previous studies have found that gestures expressing representational information, such as iconic gestures, are related to the early acquisition of language and cognitive abilities (Iverson & Goldin-Meadow, 2005; Goldin-Meadow, Cook & Mitchell, 2009; Tellier, 2008). However, less is known about whether beat gestures also interplay with early cognitive abilities. So et al. (2012) found that while adults benefited from the presence of both iconic and beat gestures to recall words, 4- and 5-year-old children only benefited from the presence of iconic gestures. In their study, however, every word of the list was presented with a beat gesture, and thus children could not perceive beat gestures as a prominent cue in contrast to a less prominent cue. Moreover, the list of words was presented without a pragmatic context, and serial sequential effects were not controlled for.

The aim of our study is to investigate whether the presence of beat gestures helps children to recall a word when they are presented in a relevant discourse. Our hypothesis is that children will benefit from the presence of beat gestures in a serial recall activity task when presented as a prominent cue of the discourse context. One hundred 3-, 4-, and 5-year old Catalan-dominant children participated in our study. They were presented with a story about an elephant that enjoys travelling and were asked to recall a list of target items that the character had to perform before travelling. There were four experimental trials. Each trial consisted of a list of five different disyllabic nouns, presented in two different conditions (2 trials per condition, within-subjects): a 'no-beat condition', and a 'beat condition'. In order to control for serial sequential effects (i.e., first and the last elements of a list are easier to remember; e.g. Lewkowicz, 2013), the beat/no-beat exposure only affected the middle item in the lists (e.g., in the beat condition, only the third noun in a five word list).

The results show that infants recall significantly better the target item in the beat condition than in the no-beat condition, $F (1, 414) = 4.759$ $p < .05$ (See Fig 1). Children’s ability to recall words produced with a beat gesture increase with age (See Fig 2). Results on the influence of children’s Theory-of-Mind ability are also discussed. Beat gestures seem to help children to recall information when they function as a prominent cue in a discourse context.
References:


