

Prosodic prominence marked with beat gestures favors word recall in preschoolers

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In normal conversation speakers accompany speech with simple hand and body movements that are typically associated with prosodic heads and edges (Loehr, 2012). 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 prosodic prominence, e.g. information highlighting (Loehr, 2012; Wagner, 2014). Moreover, the presence of beat (and also iconic) gestures has been found to help adults to recall information (So, Chen-Hui & Wei-Shan, 2012).

In the field of first and second language acquisition, previous studies have found that representational gestures (or iconic gestures) favor word memorization and learning (Iverson & Goldin-Meadow, 2005; Goldin-Meadow, Cook & Mitchell, 2009; Tellier, 2008). However, little is known about whether beat gestures also affect word memorization in children. 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 prominent 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. Sixty 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. In a within-subjects design, children were exposed to four experimental trials. Each trial consisted of a list of five different disyllabic nouns, presented in two different conditions (2 trials per condition,): 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 central item on the lists (e.g., in the beat condition, only the third noun in a five word list).

Preliminary results with thirteen infants show that infants recall significantly better the target item in the beat condition than in the no-beat condition, $t(23) = -2.713$, $p < .001$ (See Fig 1). Beat gestures seem to help children to recall information when they function as a prominent cue in a discourse context.

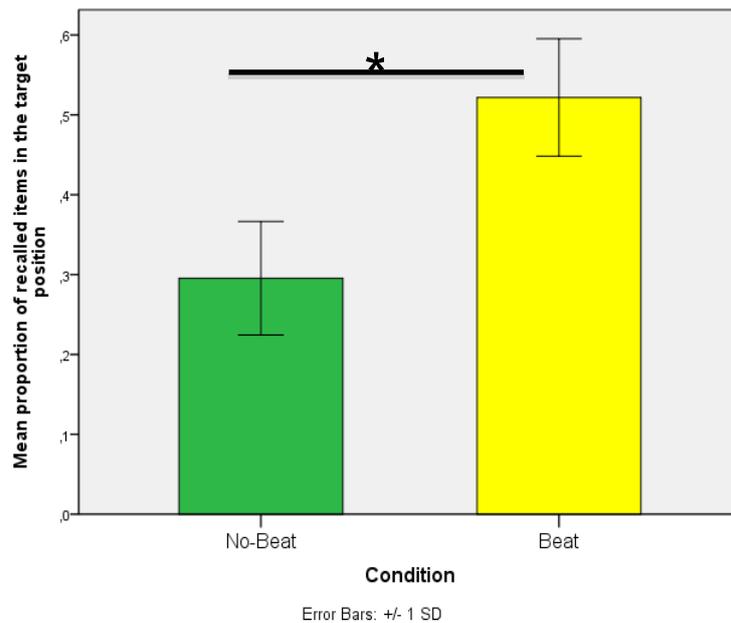


Fig 1. Mean proportion of recall items in the central position

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