The role of audio-visual prominence on the acquisition of novel words in a second language.

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Researchers have shown that in human communication, gestures and speech are tightly integrated at the phonological (i.e., temporal), and semanticopragmatic levels (e.g., McNeill, 1992; Loehr, 2012). Beat gestures are a type of rhythmic hand and arm movements that have been shown to be tightly interconnected with speech prominence (McNeill, 1992). In natural communication, prosodic prominence and visual information work in a complementary fashion. Krahmer and Swerts (2007) showed that observing beat gestures in the native language increases perception of acoustic prominence. Both visual (e.g., beat gestures) and auditory cues (e.g., pitch accents) to linguistic prominence have been shown to aid recall and comprehension processes across languages. With respect to acoustic prominence, studies have detected a positive effect of prosodic prominence on information comprehension and memorization (e.g., Bock and Mazzella, 1983; Fraundorf et al., 2010). With respect to visual prominence, beat gestures have been shown to aid in recall of native words in both adults (So et al., 2012) and children (Igualada et al., 2014). Recent neural investigations provided evidence of the beneficial effects of beat gestures on speech perception (Hubbard et al., 2009), suggesting a potential role of these gestures as attention-getters (Biau& Soto-Faraco, 2013). In general, these results suggest that speakers use auditory and visual marking of prominence to selectively encode and update discourse information and thus facilitate comprehension and recall.

In the field of second language acquisition, most of the studies have focused on the positive role of representational (or iconic) gestures on L2 vocabulary learning (e.g., Kelly et al., 2009). However, the potential beneficial effects of beat gestures as a type of multimodal input lack solid investigation. Previous studies in this field have brought into focus the fact that L2 learners use beat gestures profusely in situations of lack of recall (Gullberg, 1998). Yet to our knowledge, only one study has examined the role of beat gestures on word learning at the phonological level. Hirata et al. (2014) detected a moderate positive impact of hand syllabic-rhythmic beat gestures on auditory learning of phonemic vowel length contrasts in Japanese.

Our study aims to assess the potential effects of prosodic (e.g., focal pitch accents) and visual (e.g., beat gesture) prominence on L2 novel vocabulary acquisition. Participants will be presented with lists of L2 words in one of the following four conditions: 1) accompanied by no prominent prosody and no gesture; 2) with marked prosody but no gestures; 3) accompanied by beat gestures but by unmarked prosody; 4) accompanied by prominent prosody and beat gestures ("natural beats" condition). We will use an adaptation of the procedure followed by So et al. (2012). We expect a positive effect of beat gestures produced with natural prosodic and visual prominences on novel L2 vocabulary memorization.

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