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What's coming? Evidence of gesture influence on L2 grammatical morpheme learning

When observing a sequence of events, it is often possible to anticipate the next item (Grisoni et al., 2017) and predictive processes play an important role in learning. But can this principle be applied to the challenges many L2 speakers of English face when learning grammatical morphemes, such as the possessive {-s} and plural {-s}? Hand gestures embody emotions, intentions and thoughts, and are used across cultures to support communication and understanding. However, in addition to using spontaneous gestures, teachers can also intentionally use gestures as a teaching tool. This ability makes it possible for teachers to pair gestures with different units of language, such as sentences, words or grammatical morphemes. But should they do so? Understanding how gestural phenomena contribute to meaning is of great importance for linguistic theorizing (Ebert, 2024) and researchers have advocated for experiments to identify which gestures support learning (Gullberg, 2013, p. 1872).

Embedded in the declarative/procedural model of language learning, knowledge and use (Ullman, 2016) and previous research, the present study (N = 19) examines whether gestures embodying grammatical morphemes during instruction can assist in procedural language learning. Following a pre-post within participant experimental design, the speeded-fragment-completion-task (Heyman et al., 2015) was adapted for gesture and assessed response time, our measure of procedural learning, before and after learning. In weeks 1 and 3, children completed 32 phrases such as *the boy's bo_k* (book) or *the boys w_ve* (wave) in a self-paced task. All phrases were completed by all children under two conditions: a two-gesture condition (which visually distinguished between the possessive and plural 's') and a one-gesture condition (with a single 's' gesture). In week 2 training consisted of four hours of classroom activities aimed at encouraging learners to create mental representations of these L2 constructions. Some activities, such as performing gestures for word-picture pairs, took place in one large group. Other games such as 'Make a GIF' and 'Gesture Memory' (see Figure 1) were played in small groups.

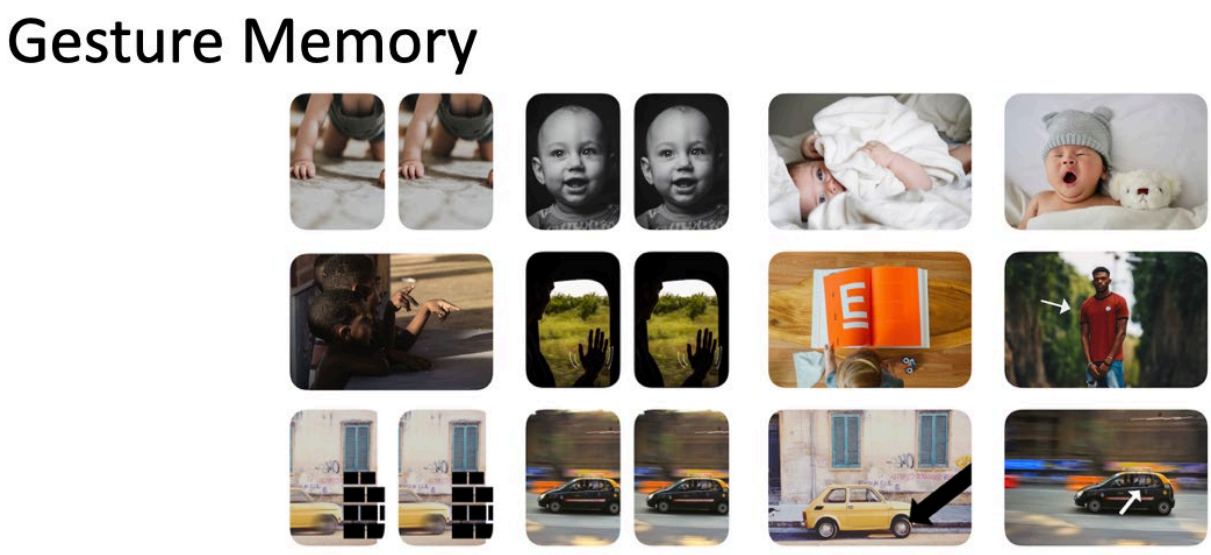

Figure 1: *Sample Gesture Memory game items* (images adapted from Unsplash)

A linear mixed effects model fit to participants' button press latencies show a decrease in mean response times after instruction in the two gesture test condition (p = .039*). This suggests that L2 instruction which visually distinguishes between grammatical morphemes can help learners bridge the gap between understanding grammatical units and understanding these linguistic units in context.

Interestingly, and related to Construction Grammar, the gestures in this study align with several Principles of Pedagogical Construction Grammar (PCxG) proposed by Herbst (2016) and detailed in Boas (2022, pp. 20–31). Given that instructional gestures can be independent of any specific L1, teaching gestures may be particularly beneficial when instructing linguistically diverse groups of students. Implications of this kind may be especially relevant for teaching in Germany where about one third of children and adolescents are not taught in their first or only first language (Bryant & Rinker, 2021).

Sources

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