

# The role of seeing gestures in children's word learning and event memory

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Keywords: gesture, word learning, language development, memory, iconicity

Iconic gestures refer to communicative gestures that depict motion, action and shape (McNeill, 1992). For example, as a speaker says, "she throws a ball", she might enact a throwing motion with her hand, or as she says, "the ball hit the wall and bounced back", she might trace the trajectory of the ball with her finger.

Iconic gestures can convey information not in speech to the recipient. However, in most previous studies, iconic gestures referred to entities not present in the speech event (e.g., an event that speaker had experienced in the past). Thus, it is not well understood how iconic gestures contribute to communication in ostensive situations, where the recipient can see both an iconic gesture and its referent. This presentation discusses how adults' iconic gestures in ostensive situations influence children's word learning and event memory. In particular, we tested whether iconic gestures schematise key information in the scene, and guide children attention to the key information. The goal of the presentation is to propose a new theoretical framework regarding different types of communicative effects of iconic gestures. This theoretical framework will draw on the following two key studies.

The first study (Mumford & Kita, 2014) showed that adults' gestures can affect children's schematization of an event during word learning. In this study, an adult speaker used a novel verb ("Look! She is blicking") as 3-year-old children (N = 120) watched a video scene in which a hand moved objects in a particular way (pushing strips of cloth) into a particular configuration (vertical stripes). The novel verb was ambiguous between two possible referents: acting on objects in a particular manner (pushing) or causing the end state (making vertical stripes). When the adult accompanied the novel verb with a gesture highlighting the manner of action, children interpreted the verb as characterizing manner; when the adult accompanied the novel verb with a gesture highlighting the end state, children interpreted the verb as referring to making the end state. Thus, when learning a novel verb while watching a complex scene, children used the speaker's gestures to schematize the scene. This allowed children to focus on only one aspect of the scene, leading to different inferences about the referent.

The second study (Aussems & Kita, in press) showed that adults' gestures can affect children's schematization of an event in a memory task. In this study, an adult showed 3-year-old children (N = 72) a video scene in which a person moves from the right to left in an unusual manner (e.g., walking as she repeatedly bends the upper body forward 90 degrees). While showing the video to children and saying, "Wow! Look at what he (she) is doing!", an adult produced either an iconic gesture that depicts the manner of walking, or an interactive gesture (e.g., showing a surprise by raising both hands with the palms facing forward), or no gesture. Iconic gestures had three types, depending on what the hand represented: hand-as-foot, hand-as-leg, hand-as-body. A few minutes later, children were shown pairs of videos and asked to recognise which one of the two videos they had seen (one video was indeed a video shown before, and the other foil showed either the same action by a different actor or a different action by the same person). Children recognised the action better when they have seen an iconic gesture during encoding than when they saw an interactive gesture or no gesture. Furthermore, children recognised the actor better when the hand represented the whole body, representing a large portion of the person. This indicates seeing iconic gestures while encoding events facilitated children's memory of those aspects of events that are schematically highlighted by gestures.

The key claim of the new theoretical framework is that iconic gestures do far more than just conveying the information encoded in the gestures (this basic effect is illustrated by Mumford & Kita, 2014). For example, iconic gestures serve a deictic function of guiding the addressee's attention (as illustrated by Aussems & Kita, in press). We further discuss other types of communicative functions of iconic gestures based on other findings in the literature.

## References

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