

When two hands say more than one: using simultaneous iconic gestures with children.

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In face-to-face communication humans adapt their multimodal utterances (i.e., speech+gesture) to the informational needs of their addressees. Indeed, research has shown that Italian speakers increase the rate of iconic gestures overall and two-handed iconic gestures with children, suggesting that it serves as a communicative strategy to increase the informativeness of their utterances (Campisi & Özyürek, 2013; Campisi et al., 2023). However, no systematic analysis has been conducted on whether use of two-handed gestures actually leads to increase in informativeness. Sign language studies show that signers exploit multiple body articulators (e.g., two hands) as a strategy to increase communicative efficiency by encoding multiple semantic features of an event simultaneously (Slonimska et al., 2020). As speakers might be recruiting similar strategies, we hypothesize that if two-handed gestures are used to increase informativeness for children, they should be used more with children than adults to represent more semantic features simultaneously, increasing the overall iconicity of the representation.

We analysed iconic two-handed gestures produced by 16 Italian native speakers explaining the board game (Fig.1) to a child and to an adult.



Figure 1. Tower of Hanoi

We coded whether gestures represent two elements (e.g., two disks, Fig.2b and Fig.2c) as opposed to only one element (e.g., one disk, Fig.2a). Then, we annotated the type of information represented. If gestures represented a physical feature of an object (e.g., Fig.2a & b) it was coded as containing imagistic component. If gestures represented relative position between two objects it was coded as containing spatial relationship, e.g., Fig.2c represents only spatial relationship & Fig.2b represents both objects and spatial relationship.

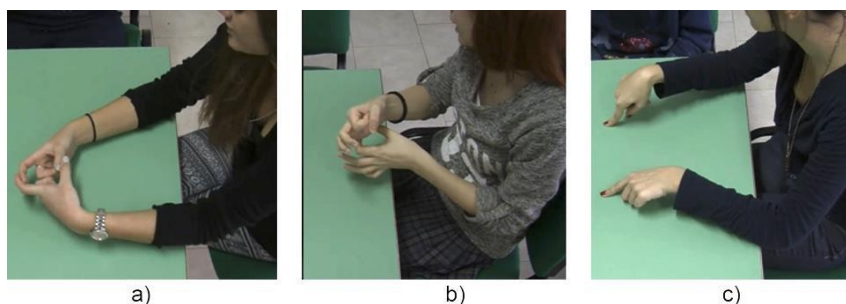


Figure 2. Two-handed gestures representing a) one disk, b) two disks on top of each other, c) only spatial relation between two objects.

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Results showed that speakers encode two elements more often when talking to children (Fig.3). Moreover, speakers used more imagistic component with children while the use of spatial relationships was comparable.

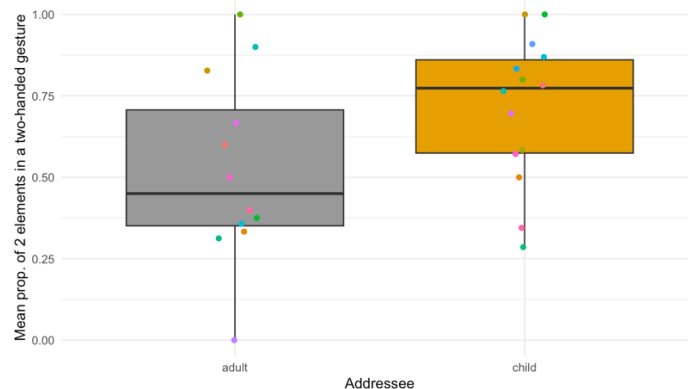


Figure 3. Proportion of two elements represented in two-handed gestures for adults and children.

In this study, we provide first insights into how adults modulate number and type of information represented in their gestures with children. First, our results show that speakers use two-handed gestures to represent more units of information (semantic features) for children compared to adults. Furthermore, results suggest that while two-handed gestures are used to represent spatial relationships for both adults and children, the simultaneous addition of imagistic component (Fig.2b) is used as a strategy to increase informativeness when designing communication for children.

This research expands our understanding of the use of simultaneity in two-handed co-speech gestures as a communicative strategy, supporting the hypothesis that iconicity benefits from simultaneity to increase communicative efficiency.

References

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