

## Do children differ in their comprehension of different types of gestures and gesture-speech combinations?

Schmuck, L., Rucker, A., Dimitrova, N., Özçalışkan, S., & Adamson, L. B.

Caregivers gesture frequently when interacting with their children. They produce *deictic gestures* to indicate objects (e.g., point at chair), *conventional gestures* to convey culturally prescribed meanings (e.g., thumbs-up), and *iconic gestures* to convey actions or attributes associated with objects (e.g., flapping arms to convey bird). They also frequently combine these gestures with speech, either conveying the same information as speech (i.e., *reinforcing* combinations; e.g., ‘cookie’+point at cookie), or additional information not found in speech (i.e., *supplementary* combinations; e.g., ‘mommy’+point at cookie). We know from previous work that the co-speech gestures caregivers produce may facilitate children’s speech comprehension, (Zukow-Goldring, 1996). However, we do not yet know whether this facilitative effect varies by gesture type or the informational relation gesture holds to the accompanying speech. In this study, we asked whether young children differ in their comprehension of the types of gestures and gesture-speech combinations. We explored this question by studying 21 children (Mage=47 months) in a gesture comprehension task. Each child was presented with 36 gesture-speech combination types, including 9 gesture-only (e.g., point at sofa), 9 speech-only (“sofa”), 9 reinforcing gesture+speech (“sofa”+point at sofa), and 9 supplementary gesture+speech (“sitting”+ point at sofa) items and asked to choose the picture that matched the experimenter’s description in a forced-choice picture matching task. Each gesture-speech combination type contained equal numbers of different gesture types. We found that children showed both a marginal effect of gesture type ( $F(2, 62)=3.14, p=.05$ ) and a significant effect of gesture-speech combination type in comprehension ( $F(1,41)=5.18, p=.03$ ). Overall, children showed better comprehension of deictic gestures than conventional gestures (Bonferroni,  $p=.05$ ). Children also showed better comprehension of reinforcing gesture-speech combinations ( $M=7.19$  items understood) than supplementary combinations ( $M=5.94$ ). Our results show that children can glean information from gesture at an early age, but this ability shows variability based on both gesture type and the type of the informational relation gesture holds to the accompanying speech.