Children's comprehension and production of different pointing gestures

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Pointing gestures are an important cue to specify a referent in ostensive communication. Our research focused on whether young children understand and produce atypical, or different, types of pointing gestures. Although it is known that children begin to perform pointing gestures at an early age for communication purposes (Liszkowski, et al., 2004; Tomasello, 2010), most previous studies have only examined typical index-finger pointing, at some distance from the referent, with the intention to communicate regarding the referent. The referents in these studies were primarily whole objects. However, pointing is useful even when the referents are not distinct in the environment, for example, parts embedded in whole objects. In these cases, typical index-finger pointing from a distance seems to be ineffective, or ambiguous, in specifying the object parts.

Studies on comprehension of pointing suggest that children understand unfamiliar pointing gestures (Kobayashi & Yasuda, 2012; Kobayashi, 2018). We examined whether 2-year-olds, 4-year-olds, and adults can learn part labels embedded in whole objects when they observed an adult pointing at, and touching, the object part (touch-pointing). We found that, unlike adults, children had difficulty learning using touch-pointing. However, in a different condition, under which a tiny circular motion of index-finger was added to the pointing, children, including 2-year-olds, effectively learned the part labels.

A recent study by Kobayashi (2018) examined children's comprehension and production of pointing using more complex object sets and found an interesting asymmetry in production of pointing. Most children understood unfamiliar pointing, as suggested in our previous study, but rarely used, or imitated, the presented unfamiliar pointing when presented. Instead, they used other types of pointing, including typical (distant) pointing, touch-pointing, or tapping to specify object parts. We found that children readily "replace" unfamiliar pointing gestures with more familiar ones, and sometimes do not recognize typical pointing may be ambiguous in specifying object parts.

Overall, we found young children understand and produce atypical, and different, types of pointing gestures. However, their performance was not comparable to that of an adult, and was still undergoing development. The findings suggest that higher levels of ostensive communication skills are needed to facilitate the proper use of pointing gestures.

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