

Coordination of pointing and eye gaze in adults teaching whole/part object labels

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When learning word meanings, it is essential to identify the relationship between the word and the referent concept. Young children have the ability to understand the referential intentions of others conveyed by pointing gestures and eye gaze (Doherty, Anderson, & Howieson, 2009; Tomasello, Carpenter, & Lizskowski, 2007). To teach novel labels to children, adults use eye gaze and pointing gestures as ostensive signals. However, exactly how they are delivered is not well understood. Yasuda and Kobayashi (2012) reported that adult caregivers used demonstration, or touch-point, when they taught labels of part or whole objects to children. The caregivers touch-pointed the part of the object when teaching part names. However, when teaching the whole label, they used showing cues rather than pointing cues. It was suggested that the caregivers had monitored children's attention, and acted using referential gestures dependent on the type of label. As ostensive signals, pointing gestures and gaze are important to convey referential intentions (Csibra & Gergely, 2009).

In this study, we used Yasuda and Kobayashi's (2012) data to understand whether adults express different pointing gestures and eye gaze dependent on whether they are teaching a label for whole or part objects. This data consisted of a corpus delineating caregiver's gaze and referential gestures when teaching whole or part labels of objects to children. For example, in the caregiver's gaze class of "gaze to a child," the caregiver looked at the child's face or body. We classified four types of caregiver's actions: 1) referential gesture with gaze to the child; 2) showing with gaze to the child; 3) referential gesture with gaze to the referent; and 4) showing with gaze to the referent. To examine the caregiver's action and eye gaze, a Gaze direction (2: child, referent) x Action (2: referential gesture, showing) mixed ANOVA was performed for each type of teaching. The results showed that when caregiver taught the part name, they looked at the object with referential gestures such as pointing and demonstration ($p < .05$). However, if the caregiver taught the whole name, they looked at the child while holding and showing the object ($p < .05$). It appeared that the function of ostensive signals can be used to make a referent more specific, or to make a referent more ambiguous. We found that the adults indicated whether the label referred to the whole/part object by using pointing gesture and eye gaze. Therefore, adults provide nonlinguistic cues through referential actions and eye gaze to assist children's understanding of the adult's referential intentions.

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