Variation in frequencies of multimodal gesture usage and vocabulary development

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The objective of this study is to investigate individual and cross-cultural variations in the usage frequencies of multimodal gestures (MMGs: e.g., POINTING or TAKING) that occur in interactions involving infants, and how these relate to variations in vocabulary development.

Data was collected from 36 families with infants averaging 13-months at commencement from rural and urban communities in Mozambique. Each family was recorded twice for 45-60 minutes of free behavior, after which an adapted version of the MBCDI short-form was administered to primary caregivers. Thirty minutes of video from the recording carried out at 13-months was coded for 10 categories of MMGs used by infants and their communication partners. Spearman's correlations were calculated between the frequencies of these MMGs and the MBCDI scores obtained at 13 Months and 18 Months.

Despite individual differences, the average frequency distributions of MMGs from both sites are highly similar. The frequencies of the following gestures have significant (*$p<0.05$; **$p<0.01$) positive correlations with vocabulary development (in one or both cultures, and at 13 and/or 18 Months): everyone's PROXIMAL POINTING** and CHECKING**; infants' GIVING** and GESTURE-FOLLOWING*; communication partners' SHOWING* and REACHING**. Negative correlations occur with infant's EYE-GAZE**; primary partners' TAKING** and GIVING**; and secondary partners' EYE-GAZE* and DISTAL POINTING*.

Cross-culturally the types of MMGs that have significant correlations with vocabulary development are different. However, we argue that for both cultures the MMGs that have positive correlations with vocabulary development (e.g., PROXIMAL POINTING, SHOWING or CHECKING) all focus/strengthen attention in joint engagement, while those that have negative correlations (e.g., TAKING, EYE-GAZE or DISTAL POINTING) disrupt/weaken attention in joint engagement.

To conclude, individual variations in the frequencies of MMGs used in interactions appear to have significant impact on infants' vocabulary development, but, apart from differences in certain specific MMGs, the impact appears similar across these two cultures.