

## Cultural differences in infants' non-verbal communication and vocabulary development

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Infants' gesture production is a good predictor for later vocabulary development, and relates to the socio-economic status of their families (Rowe & Goldin-Meadow, 2009). However, little is known about cross-cultural differences in infants' *non-verbal communication*, which include physical actions outside of individual gestures, and how these relate to vocabulary development.

We observed the natural interactions of 40 infants in their home environment in three cultures: The Netherlands, urban Mozambique and rural Mozambique. Infants were observed for 30-minutes when approximately 1;1 and 1;6 years old. We coded a variety of non-verbal *gestures* (e.g., pointing, reaching, attention-getters and conventionals) as well as *actions* (e.g., ritual play, demonstration and embodied action). In addition, we measured infants' expressive vocabulary size at 1;1, 1;6 and 2;1, as reported by their caregivers, using parental checklists adapted from the MacArthur-Bates CDI.

Findings show that the total number of non-verbal cues infants produced in the three communities did not differ significantly (even though there are substantial differences in the input, Vogt & Mastin, 2013). However, the three communities differ significantly regarding some particular cues: more conventional gestures and pointing in the Netherlands, more attention-getters in Mozambique, and more demonstrations and reaches in rural Mozambique. Relating to vocabulary development, we found positive correlations between reported expressive vocabulary and: (1) conventionals in the Netherlands; (2) conventionals, ritual play, pointing, demonstration, and offering in urban Mozambique; (3) ritual play and embodied action in rural Mozambique.

We argue that these differences fit with Keller's (2012) characterization of such typical learning environments. According to this characterization, Dutch caregivers foster individual psychological autonomy exemplified by *non-verbal (symbolic) gestures*; rural Mozambicans foster communal action autonomy exemplified by *non-verbal actions*; and urban Mozambicans foster communal psychological autonomy exemplified by both *non-verbal gestures and actions*.