Baby sign

- A set of gestures symbolising words such as ‘milk’ and ‘tired’ taught to hearing babies.
- Increasingly popular among parents and their pre-verbal infants in the UK.
- Claimed to improve language development and enhance parent-child bonding, but not clear whether/how this works.
- If using baby sign causes mothers to perceive their infants as capable of intentional communication at an earlier age, they may be more likely to acknowledge their child’s gestures (e.g. points, reaches), and to provide more mental-state terms in response to these gestures.
- Limited research on impact of baby sign, but current findings suggest positive effects on maternal responsiveness and attunement (e.g. Góngora & Farkas, 2009; Vallotton, 2012; Kirk et al., 2013).
- Other research suggests that infants’ gestures elicit mental-state terms from mothers (Olson & Masur, 2011), and that mothers use more mental-state labelling (see, want, like) when they see their children as volitional agents (Slaughter et al., 2009). Use of such terms may reflect mothers’ ‘mind-mindedness’ (e.g. Meins et al., 2001).

Results

To address our research questions, data were analysed in R.

1. Number of gestures (points, reaches or object extensions) produced by infants:
   - t-test shows no difference between baby-sign and control groups, either IV or DV (baby sign M = 81.00, control M = 63.57; t = 1.53, p = 0.131) or for individual gesture types.
   - Contingent responses to infant gestures (points, reaches or object extensions):
     - Mixed model shows no difference between baby-signing and non-signing mothers in proportion of contingent responses (Δ = 0.11, p = 0.63; Figure 3).
     - t-test also shows no difference in number of contingent responses (t = 1.57, p = 0.12).

2. Internal state responses to infant gestures (points, reaches or object extensions):
   - Mixed model shows no difference between baby-signing and non-signing mothers in proportion of internal state responses (Δ = 0.01, p = 0.57).
   - t-test shows baby-signing mothers produced a higher number of internal state responses overall (baby sign mean = 11.83, t = 2.26, p = 0.03).
   - Mixed model shows baby-signing mothers significantly more likely to produce a response containing a volition term (want, need) (baby sign M = 0.09, control M = 0.07; Δ = 1.23, p = 0.006).

Discussion

- Baby-signing infants did not produce more pointing, reaching or object extension gestures than infants who had not participated.
- Baby-signing mothers responded to gestures similarly to non-signing mothers; nevertheless, some differences were found:
  - Baby-signing mothers used more internal state responses to infants’ gestures (although the proportion of these responses did not differ from non-signing mothers).
  - Baby-signing mothers were significantly more likely to respond to gestures, particularly object extensions, using volitional terms.
  - Together, these results suggest that baby-signing mothers are more likely to see their infants as volitional agents (e.g. Slaughter et al., 2009) and may be more ‘mind-minded’.
- Lack of relationship between gesture use and vocabulary development may seem surprising given the findings of previous papers (e.g. Iverson & Goldin-Meadow, 2005). However, these studies do not usually control for the infants’ initial vocabulary levels, as we have done.
- Possible that gesture development does not precede vocabulary development but that both reflect a general communicative ability; children who use gestures more, and earlier, also learn vocabulary more quickly, but this is not caused by their gesture use.
- Lack of relationship between baby sign and language development is in line with several previous studies (e.g. Kirk et al., 2012; Zamtik & Atkinson, 2017).
- Mounting evidence against claims made by companies promoting baby sign that participation improves language development, at least in typically developing children.

Acknowledgements

Amy Bidgood, Samantha Durrant, Michelle Peter, Julian Pine and Caroline Rowland are, respectively, Research Associates (PhD) and Professor (PhD) in the ERC International Centre for Language and Communicative Development (LuCiD) at the University of Liverpool. The support of the Economic and Social Research Council [L15/016482/1] is gratefully acknowledged. We would also like to thank the students and research assistants who have helped with the coding, and the language 0-5 families for their ongoing participation.

References