



# Can we change maternal representations indirectly? With the Baby Signs® Program children show us how.



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## Abstract

There is growing interest in maternal representations as a mediator of mother's sensitivity and responsiveness. This study examined the Baby Signs® Program as a parent-child interaction tool. Results indicate that giving preverbal children signs to communicate what they think and how they feel changes maternal representations and enhances mother-child interactions.

## Introduction

### Stubborn representations

There has been growing interest in maternal representations as a mediator of mother's behavior and mother-child interactions. The warmth and responsiveness of parenting behavior differs not just in response to children's characteristics and behaviors, but to parents' perceptions of their children (Bugental, 1992) which vary widely in accuracy and attitude. These parental representations affect child development, and have been linked to cognitive development (McGillicuddy-DeLisi, 1985), behavior problems (Benasich & Brooks-Gunn, 1996), self-regulation (Rosenblum, et al., 2002), attachment security (Oppenheim & Koren-Karie, 2002), and Theories of Mind (Meins et al., 2002, 2003).

Though maternal representations can be very stable (Benasich & Brooks-Gunn, 1996) and even stubborn in the face of evidence that the child is different than mother reported (Oppenheim & Koren-Karie, 2002), there is reason to believe that maternal representations can change (McGillicuddy-DeLisi, 1992). However, we do not often know when or how to intervene to *change* these important representations and interactions to benefit the parent and child.

### Can we change maternal representations indirectly?

Researchers know that young children have a rapidly developing sophistication to their inner worlds. They are taking in information and constructing knowledge about the world long before they can talk about it. When Acredolo and Goodwyn (1988) discovered that preverbal children could use, even create, signs to represent their own thoughts, it confirmed, to a degree, what we suspected was going on in their minds. Research on children's use of symbolic gestures has shown that children can use signs to represent a wide variety of objects, requests, actions, attributes (Acredolo & Goodwyn, 1988) and even future events and internal states (Vallotton & Grinbaum, 2003). This study asks, What would happen to the mother-child relationship if a mother were given this same insight into her child's inner world?

This study examines the effects of a low-intensity intervention – using the Baby Signs® Program as a parent-child interaction tool – to ask whether maternal representations can be changed *indirectly*. It was hypothesized that by giving the preverbal child a means to teach his mother about his own capacities, as well as what he thinks and feels, the child can change his mother's representation of him.

### Questions

- Will this simple intervention be effective in encouraging use of signs?
- Will use of Baby Signs® (symbolic gestures) with preverbal children positively impact mothers' representations of their children?
- Will use of Baby Signs® change mothers' responsiveness to their children?
- Will children's behavior in mother-child interactions change as well?

## Methods

### Participants

29 preverbal children (12 females) and their parents who were enrolled in Early Head Start were randomly assigned to an experimental group (16 families) which received the Baby Signs intervention, or a control group (13 families). There were no significant between-group differences before the intervention.

### Baby Signs® Curriculum

The intervention was intentionally simple because it was designed to test whether the use of the signs, rather than any direct information about children's minds or capacities, could change the parents' representations. It included a one-time demonstration and curriculum delivery with no additional child development information provided. This also served to make implementation easy and more relevant to the needs of early child education professionals. The intervention included the following:

- ❖ One-time demonstration of signing during home-visit
- ❖ 2-page laminated summary on the use of the Baby Signs® Program
- ❖ Set of 10 illustrated refrigerator magnets for *happy, sad, sleepy, diaper, cat, dog, where?, all gone, snack, & more*
- ❖ Signing storybook, with original 10 signs plus *outside, scared, car, see, ball, hear, & monkey*
- ❖ Children were never taught or forced to use gestures in any way, but learned and used the gestures through parent modeling.

### Measures

Measures were taken immediately before (T1) and 7 months after (T2) the curriculum was given to parents; plus a mid-point measure (TM) of sign-use.

- ❖ **Sign use:** Gesture Use Interviews with parents at TM and T2
- ❖ **Maternal representations:** Two scales of the Parenting Stress Index (PSI):
  - ❖ Child reinforces parent (lower score = better representation of relationship)
  - ❖ Child is acceptable (lower score = better representation of child)
- ❖ **Parent-child interaction:** 15-minute videos of semi-structured play (T1 & T2), coded in real-time. Inter-rater reliability was established prior to coding for all coding schemes. Percent reliability was between 85% and 95%.
  - ❖ **Children's cues:** All behavioral and vocal cues of the children were recorded as either social, request, or distress cues, and as either vocal, gestural, or behavioral. (Inter-rater reliability test Kappa = .70)
  - ❖ **Responsiveness to children's cues:** For each of the child's cues, a response by the mother was recorded as either "Appropriate," "Inappropriate," or "No response." (Kappa = .70)
  - ❖ **Responsiveness to children's affect:** Mother and child affect was coded, second by second, on a scale of 1 (very negative) to 5 (very positive). Responsiveness is the percent of child's *changes* in affect for which there was also a change (in same direction) in mother's affect within 3 seconds. (Inter-rater reliability = 91%)

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## Results

### Sign use

- **Signing group:** child average number of signs = 6.75; 3 families did no signing.
- **Control group:** child average number of signs = 1.77; 5 families did some signing.

### Maternal representations

The Baby Signing group had less stress in the PSI Reinforces Parent subscale which measures mother's satisfaction with the relationship! ( $F(1, 23) = 5.981, p = .023$ ). Further, in the total sample, signing was related to both the Reinforces Parent and Child Acceptability scales (See Table 1).

Table 1: Symbolic gesture use and parents' perception of children's behavior in the total sample at Time Two

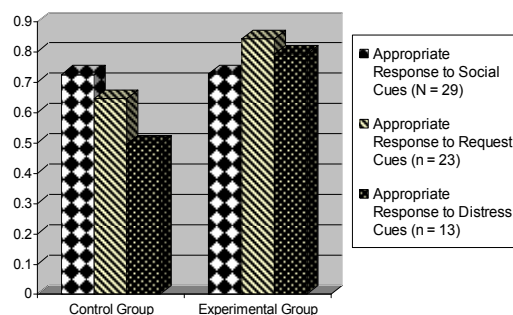
Child Signing (a)	Mom Signing (b)	Overall Signing (c)	Acceptability (n = 23) (d)	Reinforces Parent (n = 23) (e)
(a)	0.725**	0.827**	-0.214	-0.361*
(b)		0.849**	-0.352*	-0.264
(c)			-0.244	-0.340
(d)				0.517**

\*  $p < 0.05$  (1-tailed); \*\*  $p < 0.01$  (1-tailed).

### Maternal behavior in parent-child interactions

**Responsiveness to cues:** At T2, the percentage of mother's appropriate responses to child's cues appear greater for the experimental group than for the control group.

Figure 4.1: Average percentage of mothers' appropriate responses to children's cues by group at Time Two.



**Responsiveness to affect:** Overall signing was significantly related to mother's affect responsiveness ( $r = .413, p = .014, n = 28$ ) at T2, whereas there was no correlation between mother's affect responsiveness at T1 and subsequent signing.

### Children's behavior

In the total sample, mothers' signing was positively related to children's word-use at T2 ( $r = .470, p < .01$ ). Also, child's distress cue frequency was negatively correlated with appropriate response to total cues ( $r = -.549, p = .002$ ).

## Discussion

Overall, the data suggest that interactions between mothers and children who used signs included a more fluid and reciprocal exchange. Mothers seemed to have more insight into their children's behavior – finding it more acceptable, and perceiving their children as more reinforcing. Mothers' changes in perceptions were reflected in a higher degree of responsiveness to children's emotional expressions, and appeared to result in a greater level of attunement between mother and child. With more responsive caregivers, children showed fewer instances of distress in interactions with their mothers. All in all, the use of Baby Signs® as a parent-child intervention appears to have a positive effect on the relationship between mothers and children – both in daily transactions and mothers' perceptions of their children.

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