

Babies wise to what we really mean: Researchers find first evidence that six-month-olds comprehend adults' intentions

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A study by York University researchers reveals that infants as young as six months old know when we're "playing" them - and they don't like it.

Researchers in York's Centre for Infancy Studies examined six-and nine-month-old babies' reactions to a game in which an experimenter was either unable or unwilling to share a toy. Babies detected and calmly accepted when an experimenter was unable to share for reasons beyond her control, but averted their gazes and became agitated when it was clear she simply wouldn't share.

"Babies can tell if you're teasing or being manipulative, and they let you know it," says study lead author Heidi Marsh, a PhD student who worked under the direction of psychology professor Maria Legerstee, head of the Centre for Infancy Studies in York's Faculty of Health.

"These results are exciting as it's the first demonstration that used infants' [social behaviour](#) to successfully show that at six months they comprehend the goals of our actions. Previously, there was only evidence based on visual habituation (observing the pattern of infants' gazes towards stimuli) which is prone to interpretative issues, and even those results were very mixed," Marsh says.

Other studies have concluded that this ability doesn't develop until nine months of age. However, that research used measures which Marsh

proposes are unsuited to younger infants.

"A six-month-old as compared to a nine-month-old has different ways of expressing what they know," says Marsh. "The innovative aspect of this research is that we used measures that are consistent with a six-month-old's everyday behaviour in order to understand what they comprehend. We recorded their social responses, such as sadness, gaze aversions, smiles and vocalizations, in addition to more physical responses such as reaching and banging," she says.

The study looked at 40 infants, evenly divided between genders. Infants sat in their mothers' laps at a table, with the experimenter seated across from them. In half the test trials, the toy was not passed to the infant because the experimenter was unwilling to share it, and in the others, it was not passed because the experimenter was trying, but unable, to pass it.

Infants were administered three tasks: block, mock, and play. Each task differed with respect to the toy that was shared, and the nature of the sharing game, but in all tasks there was a corresponding unwilling and unable condition. For instance, in the mock task, a rattle was held out toward the infant, and then pulled back teasingly (unwilling condition), and a ball was "accidentally" dropped and rolled back to the experimenter (unable condition).

The visible movements of both the experimenter and the toy were matched across conditions, as was the outcome that the toy was not shared. This meant that the main difference between conditions was the experimenter's intent.

"We also used the experimenter's facial expressions to convey unwillingness or inability, as they're important cues for babies to understand others' goals," says Marsh.

Infants at both ages averted their gazes during unwilling trials. They also reached more in the unable conditions, suggesting they understood there was a problem and were trying to elicit the adult's assistance. The nine-month-olds banged their arms in the unwilling conditions, whereas the six-month-olds showed more negative affect, such as frowns, in those trials, and positive affective behaviours in unable conditions.

"Our finding that affective measures are stronger for younger infants may be related to their level of independence," Marsh says. "As infants become more independent, they decrease affective behavior such as crying, and increase physical actions such as actively resisting. These distinctions point to the importance of studying infants' social and cognitive abilities not only over time, but also in paradigms that capture the spectrum of their social behaviours."

The study, "Six-and Nine-Month-Old [Infants](#) Discriminate Between Goals Despite Similar Action Patterns," is co-authored by Legerstee, Jennifer Stavropoulos and Tom Nienhuis. It was published online in *Infancy* in January 2010.

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