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Are Infants Creating Historical Footprints With Their Eyes?

Learning how babies communicate can teach us a lot about the development of human social interactions. Psychologist Daniel Messinger, from the University of Miami (UM), studies infants' interactions and has found that babies are not simply living in the moment. Instead, infants seem to have particular interests that create historical footprints reflected in the infants' visual engagement over time.

The findings were published April 6 in the journal *Infancy*.

"Previous views of young infants essentially assumed they were primarily affected by what was going on right then," says Messinger, associate professor of psychology in the College of Arts and Sciences at UM and lead author of this study. "The new findings show that the baby is grounded in time and affected by the past, in a surprisingly mature way."

The study indicates that if babies are capable of controlling their behavior with respect to previous behavior, it may represent a building block of intentional action. Babies are influenced by their past actions. This is necessary for them to later develop the ability to obtain mental goals.

Messinger and his collaborators analyzed the duration of individual instances of the baby staring at and away from mom's face. They examined 13 infants interacting with their moms, during weekly face-to-face interactions. The team looked at a total of 208 interactions, in babies between four and 24 weeks old, and found that one can positively predict the duration of the baby looking at mom by the duration of the two previous gazes at mom. Longer gazes at mom tended to follow longer gazes at mom, and shorter gazes followed shorter gazes. The same was true for the duration of the gaze away from mom's face. Interestingly, the duration of gazes to and away from mom were not predicted by one another.

"We found that the duration of infant looking at mother's face, is related to how long they looked at mother's face the last time she looked at her, and the time before that,"

says Messinger. "In other words, infants are showing ongoing interest that is independent of interest in other things. So infants are coordinating these two patterns of interest."

The study also corroborated previous findings of a decrease in the duration of baby's gaze at mom, as time progressed. This is likely the result of babies' expanding awareness of their surroundings, explains Messinger.

"For babies, it may reflect the infant's increasing familiarity with the mother's face and their heightening interest in nonsocial features of the environment like their own hands, the lights in the room and whatever's around," says Messinger. "For parents, the challenge appears to be understanding that this does not reflect a decreased interest in them, but merely greater interest in visually exploring the rest of the environment. It's like a taste of growing children's increasing interest in the outside world." This research was supported by the National Science Foundation and the National Institutes of Health. Co-authors are Naomi Ekas, postdoctoral associate in psychology at the University of Miami; Paul Ruvolo, graduate student in Computer Science and Engineering at the University of California, San Diego; and Alan D. Fogel, Professor of Psychology at the University of Utah.

Journal Reference: 1. Daniel S. Messinger, Naomi V. Ekas, Paul Ruvolo, Alan D. Fogel. "Are You Interested, Baby?" Young Infants Exhibit Stable Patterns of Attention During Interaction. *Infancy*, 2011; DOI: 10.1111/j.1532-7078.2011.00074.x