

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

Neural Coupling Between Infants and Adults Supports Successful Communication

Permalink

<https://escholarship.org/uc/item/0k6109w8>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 40(0)

Authors

Piazza, Elise

Hasenfratz, Liat

Hasson, Uri

et al.

Publication Date

2018

Neural Coupling Between Infants and Adults Supports Successful Communication

Elise Piazza

Princeton University, Princeton, New Jersey, United States

Liat Hasenfratz

Princeton University, Princeton, New Jersey, United States

Uri Hasson

Princeton University, Princeton, New Jersey, United States

Casey Lew-Williams

Princeton University, Princeton, New Jersey, United States

Abstract

Infancy is the foundational period for learning from adults, and the dynamics of the social environment have long been proposed as central to childrens development. Here we reveal a novel, naturalistic approach for studying live interactions between infants and adults. Using functional near-infrared spectroscopy (fNIRS), we simultaneously and continuously measured the brains of infants (9-15 months) and an adult while they communicated and played with each other in real time. We found that time-locked neural synchrony within dyads was significantly greater when they interacted with each other than with control individuals. In addition, we found that both infant and adult brains continuously tracked the moment-to-moment fluctuations of mutual gaze and infant emotion with high temporal precision. This investigation marks a new means of understanding how the brains and behaviors of infants both shape and reflect those of their caregivers during real-life communication.