Why eye contact may help babies learn: A hidden link between two brains

August 12 2026, by Sayan Tribedi

Credit: Lokesh Loki from Pexels

Have you ever noticed how babies get hooked the moment someone makes eye contact with them? That eye contact is not only cute; it may also send a powerful message to a baby. For years, scientists have been

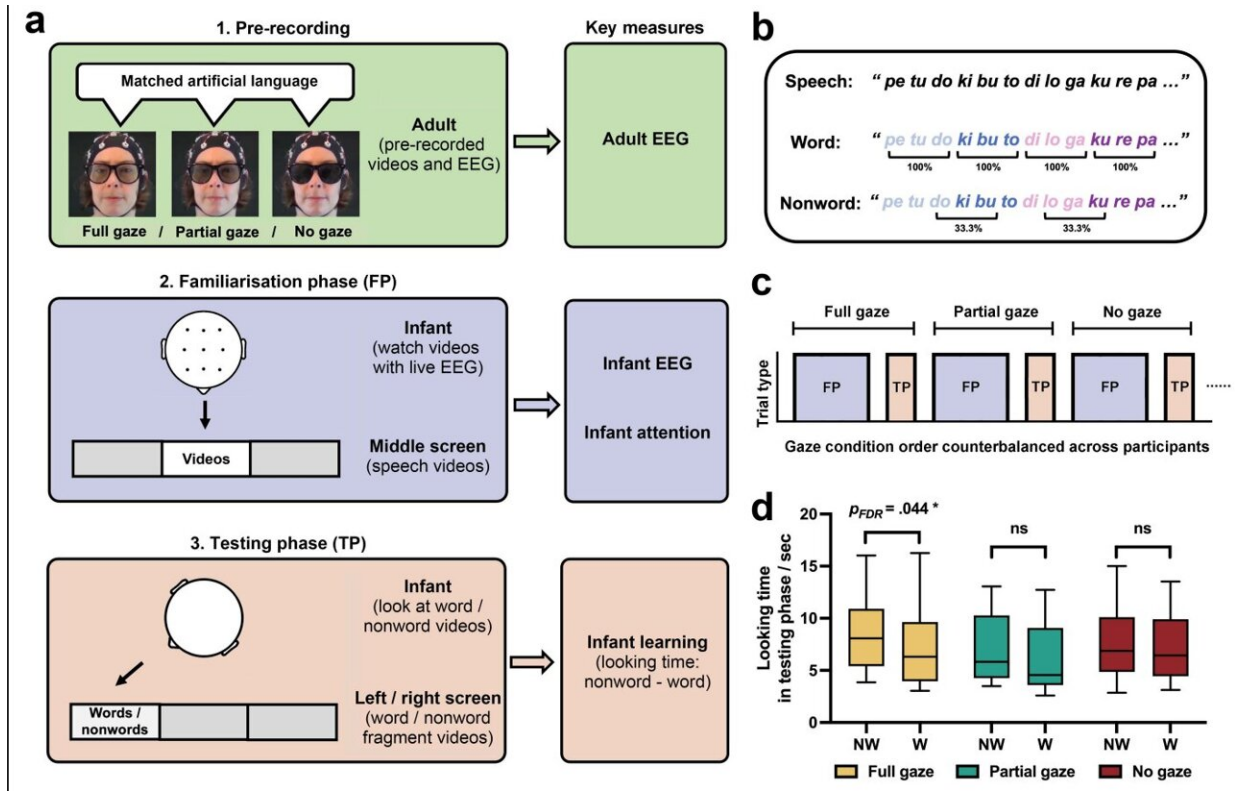
investigating whether social messages like eye contact and baby talk do more than engage babies. They may help synchronize babies' brains with adult brain waves. But the biggest question remained: Does it actually help babies learn?

A new study, published in *Nature Communications,* offers an answer. Scientists found that 9-month-old infants were able to learn a novel language when the face in a video looked directly at them with fully visible eyes.

Using electroencephalography, or EEG, brain scanning, scientists detected a kind of "neural handshake" between the adult's and infant's brains, synchronized through eye contact.

Hidden eyes, hidden words

The results showed how vital eye contact may be for babies' learning. When the person in the video made eye contact while their eyes were fully visible, the infants succeeded in learning the invented language. They recognized which combinations of sounds formed "words" and demonstrated this understanding by spending more time looking at novel sound combinations than ones they had heard before.



This visual explains how researchers tested babies' learning. It shows an adult speaker on a video screen, sometimes with clear eyes, sometimes with dark glasses, and sometimes with fully opaque glasses. Babies watched these videos, and their learning of a new language was measured by how long they looked at familiar versus new "words." Credit: Wei Zhang et al, Adult-to-infant unidirectional neural coupling mediates selective social learning in infants from the United Kingdom and Singapore, *Nature Communications* (2026). DOI: 10.1038/s41467-026-75831-x

The findings provide support for a key assumption of developmental psychology: "Adults curate infants' information selection through ostensive marking of valuable content using social cues such as eye contact." In other words, adults not only provide information for infants but also help them select what to learn.

However, when the speaker's eyes were partly obscured by dark glasses or entirely covered by opaque ones, the babies did not learn. It was as if the switch for learning was off. This was not because they stopped paying attention; the babies looked at the screen for roughly the same amount of time whether the speaker's eyes were visible or not.

Although their eyes were glued to the screen, hiding the speaker's eyes appeared to "scramble" the message, and the participants did not acquire the new language.

The intriguing pattern held for all infants, regardless of whether they were from Singapore or the UK. Babies in both groups were selective learners only when learning from a speaker making visible eye contact.

Singaporean babies generally spent more time watching the videos, but their extra attention did not help them learn better when the speaker's eyes were hidden. This suggests that eye contact is a universal cue signaling the importance of information and making it worth learning, regardless of general interest levels.

Brains in sync for learning

What made the visible-eyes videos different? To answer that question, researchers used EEG readings. The adult speaker's EEG readings were recorded in advance during video production, while the babies wore EEG caps as they watched the videos. Analyzing brain signals allowed researchers to determine the degree of matching between the adult's and baby's brain activity.

Researchers found that adult-to-infant neural coupling—the one-way matching of adult brain waves to infant brain waves—predicted the infants' ability to learn. Only adult→infant neural coupling, not the infants' own rhythmic brain activity, predicted learning ability.

"The key insight," the authors point out, "is that speaker-to-listener neural coupling is a better predictor of selective learning than infants' own neural activity." Statistical tests supported this: Once researchers accounted for the strength of adult-to-infant coupling, the direct effect of gaze on learning essentially vanished. In short, eye contact drove a brain-to-brain signal that explained the learning boost.

By contrast, the infants' entrainment to speech rhythms—how well their brains tracked syllable sounds—did not predict learning once gaze and coupling were considered.

One finding, two cultures—and lots of questions

Remarkably, the same basic story held in both the UK and Singapore samples. This suggests that the social-learning power of eye contact may be common across at least these cultures. (Still, the authors note that other groups—especially cultures that use touch or proximity as cues—might show different patterns.) They also caution that this was a small lab sample of 42 babies in a contrived task: The speaker was prerecorded, and the "languages" were artificial.

Real-world learning is back-and-forth and messy, so future work will need to test live parent–child interaction and long-term language outcomes.

Even so, the finding offers a brain-based twist on a familiar scene: When someone looks babies in the eye, that glance is not just eye-catching—it may literally connect your brain with theirs. This insight could eventually inform educational videos or tools by ensuring speakers look at the camera and help researchers study social development in infancy.

As Leong and colleagues conclude, caregivers do seem to use gaze as an "ostensive cue" to mark important content. While they are not handing

parents a simple how-to guide, the work suggests that eye contact is more than an attention grabber: It flags what babies should learn by synchronizing their brains with ours.

More information: Wei Zhang et al, Adult-to-infant unidirectional neural coupling mediates selective social learning in infants from the United Kingdom and Singapore, *Nature Communications* (2026). DOI: 10.1038/s41467-026-75831-x

© 2026 Science X Network

Citation: Why eye contact may help babies learn: A hidden link between two brains (2026, August 12) retrieved 8 September 2026 from https://sciencex.com/news/2026-07-eye-contact-babies-hidden-link.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.