

# **Study shows babies learn to imitate others because they themselves are imitated by caregivers**

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People are constantly learning from others without even being aware of it. Social learning avoids laborious trial and error; the wheel does not have to be reinvented each time. But where does this ability come from, which forms the basis of cultural learning and consequently for the evolutionary success of the human species?

A [study](#) led by Professor Markus Paulus, Chair of Developmental Psychology and Educational Psychology at LMU, demonstrates that the ability has its roots in earliest childhood. "Children acquire their ability to imitate because they themselves are imitated by their caregivers," says Markus Paulus. The study is published in *Current Biology*.

## **Children are incredible imitators—thanks to their parents**

For the study, the researchers looked at the interaction between mother and [child](#) over several months. The babies came into the lab for the first time at the age of six months, while their final visit was when they were 18 months old. As they engaged in various play situations, the interactions and imitations of mother and child were analyzed.

The [longitudinal study](#) shows that the more sensitive a mother was in her interactions with her six-month-old child and the more often she imitated the infant, the greater the child's ability was at the age of 18 months to imitate others.

In the interaction between parents and child, mutual imitation is a sign of communication. Parents respond to the signals given by the child and reflect and amplify them. A mutual imitation of actions and gestures develops.

"These experiences create connections between what the child feels and

does on the one hand and what it sees on the other. Associations are formed. The child's visual experience is connected to its own motor activity," says Markus Paulus, explaining the neuro-cognitive process.

Children learn a variety of skills through [imitation](#), such as how to use objects, cultural gestures like waving, and the acquisition of language. "Children are incredible imitators. Mimicry paves the way to their further development. Imitation is the start of the cultural process toward becoming human," says Markus Paulus. In psychology, the theory that the ability to imitate is inborn held sway for a long time. The LMU study is further evidence that the ability is actually acquired.

## **The cultural transfer of knowledge is based on imitation**

How well children learn to imitate others is crucially dependent on the sensitivity with which their parents respond to them. In this context, sensitivity is defined as the capability of a caregiver to pick up on the child's signals and react promptly and appropriately to them. "The sensitivity of the mother is a predictor of how strongly she imitates her child," says Dr. Samuel Essler, lead author of the study.

In addition, the study sheds light on what makes humans social beings, namely that our individual abilities only develop through interaction with others. Indeed, they owe their existence to the particular way in which humans raise their young.

"By being part of a social interaction culture, in which they are imitated, children learn to learn from others. Over the course of generations and millennia, this interplay has led to the cultural evolution of humans," says Markus Paulus.

"Through [social learning](#), certain actions or techniques do not have to be constantly invented anew, but there is a cultural transfer of knowledge. Our results show that the ability to imitate, and thus cultural learning, is itself a product of cultural learning, in particular the parent-child interaction."

**More information:** Samuel Essler et al, The cultural basis of cultural evolution: Longitudinal evidence that infant imitation develops by being imitated, *Current Biology* (2023). [DOI: 10.1016/j.cub.2023.08.084](https://doi.org/10.1016/j.cub.2023.08.084).  
[www.cell.com/current-biology/fulltext/S0960-9822\(23\)01164-8](https://www.cell.com/current-biology/fulltext/S0960-9822(23)01164-8)

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