Human infants capable of advanced reasoning

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Credit: CDC.gov

(Medical Xpress) -- Recent research reported in PhysOrg showed that babies seem to be able to distinguish right from wrong even at the age of six months, and consistently choose helpful characters over unhelpful ones. Now new research suggests very young children are also able to use advanced reasoning to solve problems.

Scientists Hyowon Gweon and Laura Schulz of the Massachusetts Institute of Technology (MIT) in the US studied 83 16-month-old infants to find out if they could distinguish between events caused by themselves and outside influences and how the difference would affect their reactions to failed outcomes.

When adults try to achieve an outcome such as getting a piece of equipment to work, they can usually distinguish between failures caused by equipment deficits and those caused by their own lack of knowledge or skills. The results of the MIT research suggests that even young infants can also make the same distinction.

Gweon and Schulz tested their subjects using a toy with a button on top. When the button was pressed, the toy played music. They had two adult volunteers demonstrate the toy to the infants before giving the toy to the toddlers. When the adults pressed the button the first time the music played, but it failed to play on the second press. When the toy was given to the infants, they pressed the button, but no music played.

The results were that most of the children tested gave up quickly after only a few attempts, suggesting they realized the toy was faulty, rather than the fault lying within themselves.

In another experiment the two adults had different results, with one adult always succeeding in making the toy play music while the other always failed. In this test most of the children passed the toy to their parents to ask for help rather than discarding it in favor of a different toy, suggesting they reasoned there was nothing wrong with the toy, but like one of the adults, they were doing something wrong.

Gweon, a graduate student, said the study demonstrates that even very young children are able to solve problems by making generalizations from a small amount of information, and that they "possess powerful learning mechanisms" even at such a young age.

The study was published in the journal *Science*.

More information: 16-Month-Olds Rationally Infer Causes of Failed Actions, Hyowon Gweon, Laura Schulz, *Science* 24 June 2011:
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ABSTRACT
Sixteen-month-old infants (N = 83) rationally used sparse data about the distribution of outcomes among agents and objects to solve a fundamental inference problem: deciding whether event outcomes are due to themselves or the world. When infants experienced failed outcomes, their causal attributions affected whether they sought help or explored.