

Holding a mirror up to a gibbon's mind

March 4 2009



(PhysOrg.com) -- University of Queensland developmental psychologists have taken a step into our evolutionary past by studying gibbons.

Associate Professor Thomas Suddendorf and Dr Emma Collier-Barker, from UQ's School of Psychology, studied gibbons from several zoos in Australia as well as at the Smithsonian Institute in Washington to see if they were capable of recognising themselves in mirrors.

“We know that human children develop this ability before they turn two, and we know that great apes - chimpanzees, gorillas and orangutans - can do this as well,” Dr Suddendorf said.

“Our research shows that lesser apes, such as gibbons and siamangs, do not have this ability.”

Dr Suddendorf said the research added a crucial piece to an evolutionary puzzle.

“The fact that humans and our closest living relatives, the great apes, can pass the task suggests that this capacity was inherited from a common ancestor,” he said.

“The last common ancestor of all great apes lived about 14 million years ago. Gibbons split from our evolutionary tree about 18 million years ago. The current results therefore suggest that the trait evolved between 14 and 18 million years ago.”

He said the findings also informed the search for the neurological and genetic underpinnings of the capacity to self-recognise.

“We can now ask what self-recognizing great apes and humans have in common that they do not share with non-self-recognizing lesser apes,” he said.

The research involved exposing gibbons to mirrors and then surreptitiously placing paint on their forehead.

“None of the apes recognized that the mark they could see in the mirror was on their own head. Instead, most of them looked or reached behind the mirror as if looking for another gibbon,” he said.

Various control conditions showed the apes were motivated to find marks. In one of these, the researchers used cake icing and found that the gibbons scraped icing from their legs and even from the mirror surface itself, but continued to ignore the icing on their own face that

they could see in the mirror.

“It is difficult to establish the absence of a capacity, but the current results strongly suggest that the lesser apes just do not get it.

“What's kind of cool about these results is that, together with the data from great apes, they create a comparative picture that allows us to reason about the minds of our extinct great ape ancestor, even without laying eyes on any fossils.”

The research, funded by an ARC Discovery Grant and a Queensland-Smithsonian Fellowship, was recently published in the journal *Proceedings of The Royal Society B*.

More information: rspb.royalsocietypublishing.org/

Provided by University of Queensland

Citation: Holding a mirror up to a gibbon's mind (2009, March 4) retrieved 19 September 2024 from <https://phys.org/news/2009-03-mirror-gibbons-mind.html>

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