

## Monkeys 'show self-doubt' like us

By Victoria Gill  
Science and nature reporter, BBC News

**Monkeys trained to play computer games have helped to show that it is not just humans that feel self-doubt and uncertainty, a study says.**

US-based scientists found that macaques will "pass" rather than risk choosing the wrong answer in a brainteaser task.

Awareness of our own thinking was believed to be a uniquely human trait.

But the study, presented at the AAAS meeting in Washington DC, suggests that our more primitive primate relatives are capable of such self-awareness.

Professor John David Smith, from State University of New York at Buffalo and Michael Beran, from Georgia State University, carried out the study.

**These results could help explain why self-awareness is such an important part of our cognitive makeup and from whence it came**  
John David Smith Lead researcher

They trained the macaques, which are to use a joystick-based computer game.

The animals were trained to judge the density of a pixel box that appeared at the top of the screen as either sparse or dense. To give their answer, the monkeys simply moved a cursor towards a letter S or a letter D.

When the animals chose the correct letter, they were rewarded with an edible treat. There was no punishment for choosing the wrong answer, but the game briefly paused, taking away - for a few seconds - the opportunity for the animals to win another treat.

But the monkeys had a third option - choosing a question mark - which skipped the trial and moved on to the next one. This meant no treat, but it also meant no pause in the game.

The scientists saw that the macaques used this option in exactly the same way as human participants who reported that they found a trial too tricky to answer; they chose to "pass" and move on.

Dr Smith presented footage of the animals playing the game at a session that was organised by the

"Monkeys apparently appreciate when they are likely to make an error," he told BBC News. "They seem to know when they don't know."

In the same trial, capuchins, which belong to the group known as New World monkeys, failed to take this third option.

Dr Smith explained: "There is a big theoretical question at stake here: Did [this type of cognition] develop only once in one line of the primates - emerging only in the line of Old World primates leading to apes and humans?"

He said that the capacity to think in this way was "one of the most important facets of humans' reflective mind, central to every aspect of our comprehension and learning".

"These results... could help explain why self-awareness is such an important part of our cognitive makeup and from whence it came," he added.

Story from BBC NEWS:

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