

It's all in the footwork: New research sheds light on parrot intelligence

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(PhysOrg.com) -- You can tell how smart a parrot is by watching what it does with its feet, according to a new study by Macquarie University researchers.

Favouring one foot over the other - not using a combination of both - when performing a task is an indicator of a parrot's level of intelligence. The stronger the preference for one side or the other, the higher the level of intelligence, said Dr Culum Brown, Director of Advanced Biology at Macquarie University, and author of new research published last week in the prestigious international journal, *Proceedings of the Royal Society*.

The research was conducted by Brown and Macquarie University Honours student Maria Magat.

To test the parrots' problem-solving skills, Brown and Magat chose some parrot species with a left or right side bias, as well as some species that were ambidextrous.

“The parrots with a very strong bias one way or the other tended to be more intelligent and were better able to perform more complex tasks than those that were intermixed,” Brown said.

The research results also suggest an ancient evolutionary purpose associated with having a strong bias to one side or the other and explain why some species are more successful than others.

“With parrots, being intelligent gives them a strong foraging advantage,” Brown said.

“There is a strong connection between preferences for foot use and the hemisphere the parrots are using to analyse information. By strongly favouring one foot over the other, a parrot shows us it is processing specific information in one hemisphere of its [brain](#) without interference from the other hemisphere, much like a dual processor computer,” he said.

The process that takes place in the brain when a parrot favours one foot over the other is called cerebral lateralisation - the partitioning of [information processing](#) between the two hemispheres of the brain. The research suggests that one of the benefits of having two brain hemispheres is that it allows us to pay attention to multiple sources of information simultaneously, thereby enhancing our processing capacity.

Cerebral lateralisation was long thought to be a unique human trait

because of its close relationship with control of speech and other higher order cognitive functions. However, more recent research has found this it exists in a wide range of animals, both vertebrates and invertebrates.

The study revealed that parrots with strongly lateralised brains showed enhanced discrimination abilities and a greater capacity to solve complex problems.

Provided by Macquarie University

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