

Chimpanzees flexibly adjust their behavior to maximize payoffs, not to conform to majorities

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Chimps are rational, not conformist. Credit: MPI for Psycholinguistics

Chimpanzees are sensitive to social influences but they maintain their own strategy to solve a problem rather than conform to what the majority of group members are doing. However, chimpanzees do change

their strategy when they can obtain greater rewards, MPI researchers found.

Chimpanzees are known for their curious nature. They show a rich palette of learning behaviour, both individually and socially. But they are also rather hesitant to abandon their personal preferences, even when that familiar behaviour becomes extremely ineffective. Under which circumstances would [chimpanzees](#) flexibly adjust their behaviour? Edwin van Leeuwen and colleagues from the MPI's for Psycholinguistics and Evolutionary Anthropology conducted a series of experiments in Germany and Zambia to answer this question.

The researchers studied 16 captive chimpanzees at the Wolfgang Kohler Primate Research Center in Germany (Leipzig) and 12 semi-wild chimpanzees at the Chimfunshi Wildlife Orphanage Trust, a sanctuary that houses more than a hundred chimpanzees under nearly natural conditions in the north-western part of Zambia. Chimpanzees were trained on two different vending machines. A minority of the group was made familiar with one machine and the majority of [group members](#) with the other machine. Wooden balls were thrown into their enclosure; the chimpanzees could insert these balls into the machines to receive one peanut for each ball.

Van Leeuwen and his colleagues first aimed to replicate previous research and looked whether the chimpanzees in the minority group would change their behaviour toward using the [vending machine](#) that the majority of group members used. However, neither the German nor the Zambian chimpanzees gave up their strategy to join the majority. In the second study, the profitability of the vending machines was changed so that the vending machine that the minority used became more profitable, now spitting out five rewards for every ball inserted. Over time, the majority chimpanzees observed that the minority chimpanzees received more peanuts for the same effort and all but one gradually switched to

using this more profitable machine.



Peanuts over popularity: While chimpanzees do not change their behavior under majority influences, they change it when they can maximize payoffs by doing so. Credit: Max Planck Institute for Psycholinguistics

"Where chimpanzees do not readily change their behaviour under majority influences, they do change their behaviour when they can maximise their payoffs," Van Leeuwen says. "We conclude that chimpanzees may prefer persevering in successful and familiar strategies over adopting the equally effective strategy of the majority, but that chimpanzees find sufficient incentive in changing their behaviour when they can obtain higher rewards somewhere else." "So, it's peanuts over popularity" he jokingly adds.

The researchers emphasise that these results may be dependent upon the specific trade-offs that were created by the experimental design and that

chimpanzees could act differently under the pressures of life in the wild. Van Leeuwen: "Conformity could still be a process guiding chimpanzees' [behaviour](#). Chimpanzee females, for instance, disperse to other groups in the wild. For these females, it is of vital importance to integrate into the new group. Conformity to local (foraging) customs might help them to achieve this integration."

More information: Van Leeuwen EJ, Cronin KA, Schütte S, Call J, Haun DB. Chimpanzees (Pan troglodytes) Flexibly Adjust Their Behaviour in Order to Maximize Payoffs, Not to Conform to Majorities *PLOS ONE* Published: November 27, 2013 [DOI: 10.1371/journal.pone.0080945](#)

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