

The interaction between culture and nature in behaviour of chimpanzees

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Psychologist Edwin van Leeuwen studies the interaction between culture and nature in behaviour of chimpanzees. How much of this behaviour is genetic and how much is learned? And what does this teach us about human nature and culture? On 16 June, Van Leeuwen will obtain his PhD from Radboud University and the Max Planck Institute for

Psycholinguistics.

Van Leeuwen spends much of the year in Zambia doing fieldwork in a chimpanzee wildlife orphanage. "It was a unique situation. I studied four separate groups of chimpanzees living in a similar environment, which was a great opportunity to determine which behaviours are genetically determined and which aren't."

Primate culture is quite similar to human culture: both involve socially learned behaviours that are passed down through imitation. To determine which behaviours are culturally driven, Van Leeuwen examined whether certain behaviours appear in all four groups. If they did, he could assume these behaviours were genetically determined. If they did not, it would be unlikely that these were learned and therefore cultural.

Grooming and grass-in-ear

One behaviour studied by van Leeuwen is grooming, in which chimpanzees help each other by picking fleas. All chimpanzees do this naturally —pointing to a genetic basis— but the techniques they use show subtle differences. "Take the high-five method, for example. Chimpanzees give each other a high-five, hold arms and groom each other's underarms. Only two of our five groups displayed this unusual technique. This means it can't be genetic, and it is probably genetic."

Van Leeuwen's research generated media attention last year when he discovered a new craze among one of his groups in Zambia: a blade of grass in the ear. "That was a truly special observation because it was the first time we saw a chimpanzee tradition that did not clearly serve a purpose. It seemed more like a fashion statement." The grass-in-ear behaviour contrasted with a well-known form of primate culture that does serve a very clear purpose: using stones to crack nuts, or using sticks to eat from a termite mound.



Culture and copying

The 'trend-setting' chimp has been displaying the grass-in-ear behaviour years earlier, before the rest of the group caught on. "That's another interesting finding from my research: people copy behaviour much more quickly than chimpanzees."

Van Leeuwen demonstrated this by playing the shell game with a group of chimpanzees and a group of three- and four-year-olds. He invited each group to guess under which of the three cups the reward was hidden. When they played the game on their own, the children were much more likely to copy each other's choices than the chimpanzees. According to Van Leeuwen, this may be one of the reasons why people are more 'cultural' than primates. "The actions of peers seem to be much more influential to people than to [chimpanzees](#)."

While we often think of culture as something uniquely human, van Leeuwen's research puts it into a broader perspective. "My work suggests that culture is driven by a motivation to share information, and may not require very complicated mechanisms to flourish. Looking at chimpanzee [culture](#) challenges us to view behaviour through the blind eyes of natural selection, rather than as a uniquely human creation."

Provided by Radboud University

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