



Press Release

Apes constantly reinvent the wheel

University of Tübingen research team show that each generation of apes has to learn behavior patterns anew

Dr. Karl Guido Rijkhoek
Director

Antje Karbe
Press Officer
Phone +49 7071 29-76788
+49 7071 29-76789
Fax +49 7071 29-5566
karl.rijkhoek[at]uni-tuebingen.de
antje.karbe[at]uni-tuebingen.de

Tübingen, 29.03.2021

Great apes do not pass on their behavior to the next generation. Unlike humans, they do not copy the specific knowledge of those around them, instead learning it anew in each generation. This is shown in a study by Dr. Alba Motes-Rodrigo and Dr. Claudio Tennie of the “Tools and Culture in Early Hominins” research group at the University of Tübingen. “Metaphorically speaking, apes constantly have to reinvent the wheel. But the shape of the wheel does not change in the process,” Tennie explains.

The Early Prehistory and Quaternary Ecology team searched all published reports on great apes for statements about locally unique behavioral patterns present in a single great ape population, such as the use of leaves as spoons to drink water by chimpanzees. These were then systematically examined for accuracy. By searching for locally unique behaviors, the researchers indirectly tested whether great ape cultures are built on the same transmission mechanisms as human cultures. The resulting study has been published in the journal *Biological Reviews*.

In human culture, behaviors are learned by people observing and copying each other’s behavior. In this way, valuable know-how is passed on to the next generation. In the process, behaviors are often slightly modified, because people make mistakes when copying or add their own alterations. As a result, human culture changes from generation to generation. Alba Motes-Rodrigo compares this to the telephone game, in which each player whispers a term into the next player’s ear. The term passes among players and, due to errors in hearing, is likewise frequently changed from the original word.

Exactly when humans began copying each other in this way is hotly debated. According to one theory, the ability to copy behavior goes back millions of years and is also present in modern apes. Another theory proposes that modern apes are incapable of copying each other’s behavior, as were many human ancestors.

Alba Motes-Rodrigo and Claudio Tennie used a new approach to look for evidence of the process of know-how copying in great apes. They sought to identify behaviors in ape populations that have undergone changes from generation to generation. "If ape behavior is really based on copying, as it is in humans, we would expect behavioral details to have changed culturally, and therefore there should by now be individual behaviors that are restricted to only one population in one place," Motes-Rodrigo explains.

The team therefore searched for locally unique behavioral patterns in great apes, both in all published reports on the animals and in interviews with experts. They found that the overwhelming majority of great ape behaviors are not locally unique. Out of hundreds of ape behavior patterns, only three could not be found elsewhere.

According to the research team, these results show that ape culture is maintained by different learning mechanisms than those of human culture. Unlike humans, apes do not copy each other's know-how, but reinvent each of their behaviors over and over again in each population and in each generation. "In the process, they are merely stimulated to these reinventions by others, but without copying the particular form of behavior. This finding seems surprising, but it is supported by recent experimental studies in comparative cognitive science," Tennie says. In these studies, great apes copied new behaviors only if they had previously been trained by humans to do so. Therefore, more and more evidence suggest that modern humans and great apes acquire their behavior in different ways.

Publication:

Alba Motes-Rodrigo and Claudio Tennie: The Method of Local Restriction: in search of potential great ape culture-dependent forms. *Biological Reviews*, DOI 10.1111/brv.12710

Contact:

Dr. Claudio Tennie
University of Tübingen
Faculty of Science
Early Prehistory and Quaternary Ecology
claudio.tennie(at)uni-tuebingen.de