

## **Sacrileges are welcome in science! Opening a discussion about culture in animals**

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**Abstract:** The sacrilegious proposition of the existence of cultures in whales and dolphins should open the discussion of cultures in other animals, allowing us to find what is unique in human cultures. The ethnographic approach used by all anthropologists is the key in this investigation and revealed that cultural differences are present in animals and could result from different learning mechanisms.

Animal cultures? This sounds as a heretic combination of words to some social and cultural anthropologists. Here, the authors combine the word culture with whales and dolphins. This sounds like a stronger sacrilege than to use it with chimpanzees. Some sacrileges in science should be welcomed, and I welcome that one with the hope that it will lead to a thorough discussion of the evidence and improve the study of culture in non-human animals.

Any claim of uniqueness within a species of a behaviour can be confirmed only if we can show that effectively it is absent in other species. In fact, the discussion about culture being uniquely human has been often clouded by anthropocentrism and misreading of the evidence. Rendell and Whitehead's claim of culture being present in whales and dolphins is eye opening, for most of the readers are probably not aware of the complexity of the behaviour in aquatic mammals. I allow myself to follow their heretic proposition by discussing two important aspects about how to study culture in animals, including humans.

Social anthropologists were the first to concentrate their study on describing human cultures in many different societies. If we follow Rendell and Whitehead's terminology, all their approach was ethnographic. The overwhelming outcome of this approach was that all human societies possess large differences in feeding, housing, clothing habits, in rules of kinship, marriages, in knowledge about their environment, group members and foreigners, and in what they believe, feel, and share. The key method used to arrive at this result was comparing these aspects in many different human societies. This scientific method is in animal behaviour a luxury. This fact may explain the difference we see between humans and other mammals, because only in a small minority of species do we have observations on more than one group. Thus, *Commentary*/Rendell & Whitehead: Culture in whales and dolphins BEHAVIORAL AND BRAIN SCIENCES (2001) 24:2 327

by definition, comparisons between societies are not yet possible for most species and cultures, therefore, cannot be detected.

We have observations on more than one social group for a few animal species only, for example, on some great apes, a few primates, a few carnivores, some birds, and cetaceans, and evidence increased slowly about behavioural differences between populations.

That is the moment when psychologists entered the arena and proposed that the ethnographic approach used in animals does not answer the question of culture and that only the transmission mechanism counts to attribute culture to a species (Galef 1990; Tomasello 1990). Beside the intrinsic interest of studying the mechanism of social transmission of information within a species, the problem with this argument is the double standard it sets. No one seems to require human cultural differences to be acquired only through imitation or teaching.

The reason being simply that this data do not exist (Boesch & Tomasello 1998).

### **1. Ethnographic versus the transmission process approach.**

Since the ethnographic approach has been the main one for studying human cultures, we are perfectly justified to use the same approach

to study animal cultures. However, an awareness of the transmission mechanism has led scientists working on culture in non-human animals to emphasise the social component of cultural transmission and require that the behaviour should not be influenced by either genetic nor ecological factors. This criteria is more stringent than what has been used by social anthropologists, that never excluded a behaviour from being cultural if it was affected by ecological factors such as climatic conditions.

The main criteria for attributing cultures is that we observe differences between social groups that have a pure social origin.

What qualifies as culture is the result of the interactions within the group that is independent of the transmission mechanism that produced this result. In fact, anthropologists have almost never studied the acquisition of a behaviour or a ritual in humans; and applying a transmission approach to humans would disqualify most human cultures.

**2. Culture cannot be defined only through the transmission mechanisms**, as a behaviour seen in all humans would never qualify as cultural whatever the transmission mechanism. Hard-liners have proposed that human cultural traits are learned only by imitation or teaching and therefore this should be proved in animals before attributing them cultural abilities (Galef 1990; Heyes 1994a; Tomasello 1990). However, no evidence has been provided for this proposition. Many studies have been done with animals on the transmission mechanisms during the acquisition of different behaviours (Galef & Heyes 1996; Tomasello & Call 1997; Whiten & Custance 1996) that provided evidence of how, for example, chimpanzees learn to throw sand, to rake food, to open artificial boxes containing food, or how rats learn to push bars. These observations are very interesting when we want to understand social learning in animals. But our present interest is in cultural learning and not the learning of any behaviour. Thus, these studies tell us nothing about cultural learning in animals, since nobody proposed, for example, sand throwing to be a cultural behaviour.

The few studies about the acquisition of cultural behaviours in humans and chimpanzees show that many transmission mechanisms are at work. For example, observational learning is a major practice in learning complex weaving techniques in different human societies, a practice that is partly complemented by facilitation and stimulation from an expert during later phases of the acquisition process (Greenfield 1984; 1999; Rogoff 1990). More specifically is shown that when maintenance of a traditional way is important, learning by observations and shaping by scaffolding prevail, whereas when innovation is valued, learning by trial and error dominates (Greenfield 1999). The only existing study of the acquisition process in a cultural behaviour in chimpanzees is on the nut-cracking behaviour in the Tai forest (Boesch & Boesch-Achermann 2000) and shows that observational learning is important but mothers interfere with the learning of their offspring every five minutes by stimulating and facilitating their attempts and correcting errors when necessary. Thus, when known, the learning of cultural behaviour can be very similar in humans and chimpanzees.

In conclusion, I would like to thank the authors for opening a thorough discussion about culture in animals. I suggest that culture is a dynamic process reaching different complexities, and this will allow us to understand the uniqueness of cultures in different species, including humans.