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How Well Can You 'Read' Animal Emotions?

Could there be a shared emotional system among mammals of different species that allows us to understand 'animal talk' of other species? Are you a 'natural' at animal talk? This study shows who may be most likely to correctly read and best understand the emotions of animals.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- Research suggests there may be a shared emotional system among mammals of different species

- A study tested whether humans could understand "animal talk" by playing recordings from six species — horses, pigs, goats, cattle, Przewalski's (wild) horses and wild boars

- The participants did well with understanding, rating three of the six species accurately at "above chance" levels for arousal and four of the six species correctly for valence (negative or positive)

- When it came to assessing both arousal and valence correctly, humans only scored correctly at "above chance" levels when it came to domestic animals, namely the pigs, horses, goats and humans

- The ability to correctly gauge animal emotions was also influenced by the participants' age, capacity for empathy and familiarity with the animals, particularly if they worked with animals

Both humans and animals use vocalizations as a way to express emotions, and it turns out there may be a shared emotional system among mammals of different species. The findings came from University of Copenhagen researchers, who conducted a study into the evolution of emotion expression.

"Arousal, which is linked to stress pathways, is a system that is well conserved across vertebrates," study author Elodie Briefer said in a news release. To demonstrate just how well-conserved, they tested whether humans could understand "animal talk" by playing recordings from six species — horses, pigs, goats, cattle, Przewalski's (wild) horses and wild boars.

People Understand Domestic Animals Better Than Wild

The study involved 1,024 people from 48 countries around the world. They listened to four pairs of vocalizations from each species, rating the emotional intensity (high or low) for two of them and valence (negative or positive) for the rest.

The participants did well with understanding, rating three of the six species accurately at "above chance" levels for arousal and four of the six species correctly for valence. Specifically, the subjects rated the emotional intensity correctly 54.1% of the time and the type of emotion accurately 55.3% of the time.

However, when it came to assessing both arousal and valence correctly, humans only scored correctly at "above chance" levels when it came to domestic animals, namely the pigs, horses, goats and humans. They were able to correctly gauge only type of emotion for wild boars. The team concluded:

> "*Combined, these findings are in line with previous claims, suggesting the existence of a shared emotional arousal system across mammalian species. It could thus be that the expression of emotional arousal has been conserved throughout evolution, while the expression of emotional valence, with the exception of few parameters (e.g. duration), has not.*"

The ability to correctly gauge animal emotions was also influenced by the participants' age, capacity for empathy and familiarity with the animals, particularly if they worked with animals. People who performed well on tests of empathy and were between the ages of 20 and 29 years appeared to understand animals' emotions the best. Behavioral biologist Elodie Briefer with the University of Copenhagen explained:

> "*Our results show that based on its sounds we, humans, can determine whether or not an animal is stressed (or excited), and whether it is expressing positive or negative emotions. This applies across a number of different mammals. We can also see that our ability to interpret the sounds depends on several factors, such as age, close knowledge of animals and, not least, how empathetic we are towards other people.*"

The team hopes that by learning more about how we understand animal emotions, it can improve animal welfare across species. "Today, animal welfare is defined by the emotional life of animals.

Therefore, new knowledge provided by this study is important for both basic and applied research. On the one hand, it increases the understanding of animal emotions, and it opens opportunities to improve that understanding," Briefer said.

Is Interspecies Communication Possible?

Not only is it possible, but it happens more than you might think. In fact, according to Tamás Faragó, Ph.D. and his colleagues at Eötvös Loránd University in Budapest, dogs and humans may process non-verbal vocal expressions similarly, such that it facilitates **interspecies communication**:

> "*[O]ur recent fMRI study showed that in dogs and humans, similar brain regions are involved in processing the emotional load of non-verbal vocal expressions, suggesting that the neurological processes of extracting emotional information from the acoustic structure of calls is shared among mammals.*

> *Based on this we can assume that acoustic emotion recognition can work not only within species, but also in interspecific communication.*"

Take, for instance, dog barks. Generally speaking, dogs use longer, lower frequency barks in response to a stranger approaching and higher pitched barks when they're isolated. But, it turns out humans are adept at understanding how a dog is feeling based on its barks alone. In a study involving a Hungarian dog breed called Mudis, researchers recorded the dogs barking in six distinct situations, including:

- A stranger at the door

- A "bad guy" triggering aggression

- An owner picking up the dog's leash for a walk

- The dog left alone while tied to a tree

- Playing tug-of-war with his owner

- The owner holding a toy near the dog

The recordings were then played for 36 people, who were able to categorize the barks according to the dogs' likely emotions at the time (playful, fearful or aggressive).

"Our theory is that the dog is a very special, man-created animal," study author Péter Pongrácz, Ph.D., of Eötvös Loránd University in Hungary, told the American Psychological Association. "It was shaped during many tens of thousands of years of domestication to live with people, so it's not surprising that this type of communication should exist."

The University of Copenhagen study suggests, however, that it's not only dogs' vocalizations that humans are capable of deciphering but also those of other domesticated species. And it makes sense that the more you understand animals — and empathy — the easier it is to communicate with them.

"It was really surprising for me and very interesting that those who performed well in a recognized test to assess people's empathic level — towards other people, mind you — were also significantly better at understanding the emotional lives of animals," Briefer added.

Sources and References

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