

Citizen scientists contribute to dog research: At-home tests produce findings similar to laboratories

16 September 2015



Duke Evolutionary anthropologist Brian Hare and his dog Tasmania. Credit: Vanessa Woods

Five hundred citizen scientists around the world have contributed data to a study of what goes on inside the minds of their dogs.

The research, appearing Sept. 16 in *PLoS ONE*, analyzes data collected by 500 [dog owners](#) who played the same games at home that researchers use in the laboratory to find out about a dog's [cognitive skills](#) and problem-solving.

On five of the seven tests analyzed, citizen science data corresponded closely to what had been produced by labs at Duke University and elsewhere.

For example, in one of the game-like tests, [dogs](#) were found to rely more on their memory than their sense of smell to find a hidden treat. The dogs watched as their owner hid food under one of two cups. Then while the dog's vision was obscured, the owner switched the food to the other cup. See

a YouTube video of the experimental protocol:

If dogs could smell the food, they should have been able to choose the correct cup, but owners found that most dogs went to where they last saw the food.

The data were collected through a website called Dognition.com that was developed by Brian Hare, an associate professor of evolutionary anthropology at Duke who studies primate and dog cognition. Hare is also the founder of the Canine Cognition Center at Duke, which has a network of 1,000 dog owners who can bring their pets into the lab to participate in research.

"They're just games," Hare said. "The owners love playing them and the dogs love playing them. I realized more people could play them if they were online."

More than 17,000 dog owners from downtown Durham to Finland have signed up through Dognition and are sharing their data with the researchers.

"The data these dog owners are producing is quality data," said Evan MacLean, a senior research scientist at Duke and co-director of the Canine Cognition Center. "It matches the results we see coming out of the top research groups all over the world."

According to MacLean, the memory-over-smell result has been replicated in seven different research groups and more than a dozen different studies. "Most people think dogs use their sense of smell for everything," MacLean said. "But actually dogs use a whole range of senses when solving problems."

Analysis of the unusually large dataset created by Dognition has also found that all dogs have a unique set of cognitive skills that they use to navigate the world around them. Some dogs were found to be good communicators, some had better memories and others were better at taking their owner's perspective.

"Most people think of intelligence as glass that is more or less full," Hare said. "But intelligence is more like ice cream. Everybody has different flavors. Being good at one thing doesn't mean you will be good at everything else."

Hare said these kinds of findings are only possible with the big data sets that [citizen scientists](#) are able to generate.

"So much is possible when you have this much data," Hare said. "I'm looking forward to dog owners answering all the big questions that have puzzled scientists for decades."

More information: "Citizen Science as a New Tool in Dog Cognition Research," Laughlin Stewart, Evan L. MacLean, et al. *PLOS ONE*, Sept. 16, 2015.

Provided by Duke University

APA citation: Citizen scientists contribute to dog research: At-home tests produce findings similar to laboratories (2015, September 16) retrieved 16 June 2019 from <https://phys.org/news/2015-09-citizen-scientists-contribute-dog.html>

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