

# Juba the Thinking Dog

by Penny Randell

Juba the thinking dog here. I am called such because in my hometown of Evergreen, Colorado I am charged with the task of writing for our local newspaper. Wildlife abounds in our beautiful, mountain community and there's always plenty to write about. Today I tackle one of my favorite issues: intelligence in dogs. Now, I am considered quite the thinker and hopefully after reading what I have to say you will agree.

First, intense investigation proves that we dogs display various behavior that is tightly linked to intelligence. This intellect, or cognition is technically defined as "the process of acquiring, storing in memory, retrieving, combining, and using in new situations information and conceptual skills." In other words, cognition is conscious mental activities such as thinking, understanding, learning, and memory. Of course, you are probably aware of your own dog's intellect, but let's take a deeper look at how all this can be determined and calculated.

Not surprisingly, dogs have purposely been chosen to study intelligence in general. Areas of study include perception, awareness, memory, and aptitude in basic learning skills. During these investigations it was proven that the intellectual skills of the domestic dog were not possessed by our closest canine relatives, or even you human's closest relative, the great ape. In fact, these skills were more closely aligned with social-cognitive skills of your children. This is considered to be an example of convergent evolution, which happens when distantly related species independently create similar solutions to the same problem. Because dogs and humans have evolved closely together, you are actually more like dogs than your closest genetic relatives.

But, what do dogs understand and learn from you humans? For sure, most domesticated dogs understand human emotions, facial expressions, and gestures. An example of this is simple pointing. In one experiment a researcher placed a treat under one of two inverted cups without the dog being around to watch. After, the dog was brought back to observe the human pointing to the cup where the treat was hidden. Practically every time the dog would go for the cup that contained the prize. In return, the researcher would smile at the dog and nod yes, rewarding the dog.

Similarly, dogs can be aroused by cues indicating the direction of a human's attention. In another experiment a treat was hidden under one of two buckets. The experimenter then stepped away and simply nodded toward the right bucket, again giving a smile at the waiting dog. The involved dog followed the signals, performing better than chimpanzees, wolves, and even human infants in similar situations.

Continuing, it has been made evident that a dog can use their sense of hearing to ascertain whether a communication is referring to a thing, a verb, or an affirmation. Researchers used an MRI machine to measure brain patterns in dogs when exposed to words they already knew compared to new words. In every case the dog's auditory cortex became more activated after hearing unfamiliar words. Excitement usually followed words that were already known.

This function is known as sharpening, or paying closer attention to something that is unfamiliar and making a stronger effort to understand. Before a dog's brain begins to sharpen it tends to overgeneralize. This activates the brain into a place where learning is possible. Making eye contact during this educational moment insures that eventually the dog will understand the new word. Dogs pick up short words better than long ones. Some studies suggest only the beginning syllables will be heard. Regardless, the spoken word is closely followed with attention and curiosity.

Of course, we dogs learn from reinforcement and repetition, but we also learn from simply watching humans and even other dogs. In one exercise grown dogs were taught how to pull a wagon by a string through a small opening in order to find a treat. While doing so, puppies were allowed to watch the adults retrieve their prize. It was concluded that those pups who watched the experiment solved the problem 15 times faster than those who were left on their own. Too, we dogs react to dominance and observe a social order. When challenged in a class, the highest-ranking dog among the others usually learns the skills faster. Watching that lead dog is definitely a learning tool for the rest of us.

And now a bit about words and understanding. Studies have shown that dogs easily learn the names of objects and can even retrieve an item from among others by calling its name. Using this test, it was discovered that many dogs knew hundreds of words. In 2013 a Border Collie was documented to have learning and memory competence that allowed him to recognize over 1000 words. Other experiments prove that some dogs can even pair a photograph to a real-life object.

Naturally, the whole problem here is that non-human animals like me cannot verbalize their thoughts. Take emotion for example. Guilt has been witnessed in canines if they were caught misbehaving. When we do something that our masters do not approve of, we are usually "called down" for the crime. The most common response in all us doggies is a pout, indicating remorse, or guilt. But what if this response is only anticipation for getting in trouble and there's really no remorse at all? After all, it is a known fact that dogs can interpret facial expressions in humans. Think about that next time you smile, or most important, frown at your dog.

As always, it's quite the honor to write these essays for all you folks out there. It is my hope to bring enlightenment to all our human friends and families. And if there's a take-home message here, let it be the following: dogs have been shown to reason in similar ways to children and learn behavior from their human counterparts. Remember this and keep in mind that we are a part of you, and you are a part of us. When considering your effect on us, it takes little to make an impression. Remember that we domesticated doggies are forever watching you and are pretty much aware of your every move.