

Dog Smart

Researchers exploring the canine point of view

By Julie Hecht

DOESN'T IT SOUND REASONABLE to study the behavior of cranes? After all, cranes are quite different from humans—they can fly, spend lots of time on one leg and don't need an external GPS to find their way to Florida.

But what if we replace “cranes” with “dogs”? Why study dog behavior? Unlike cranes, dogs are not a wild

species with feathers, migratory patterns or conservation needs. Dogs have lived alongside humans for at least 15,000 years; are ubiquitous in human cultures; and regularly find their way into our literature, hearts and beds (also unassisted by GPS, it must be noted). We think we know dogs just fine. What's the point of all this scrutiny?

Dogs aren't new in the world of research.

Our shared mammalian physiology has given us reasons to open up dogs for inspection (literally) at least since the time of Descartes. In the previous century, dogs were the star subjects of Pavlov's work on the “conditioned reflex” (you remember: bell + food (then repeat) = dog salivates in anticipation of food after hearing bell). In

Illustration by Jennifer Renninger

other academic arenas, Marc Bekoff, Ian Dunbar, Michael Fox and the late Frank Beach all conducted extensive investigations into canine social behavior, physiology and development. And of course, in 1965, Scott and Fuller produced their seminal text, *Genetics and the Social Behavior of the Dog*. Konrad Lorenz, Nobel Prize-winner and acclaimed ethologist, also had dogs on the brain; if you doubt that, pick up a copy of his book, *Man Meets Dog*.

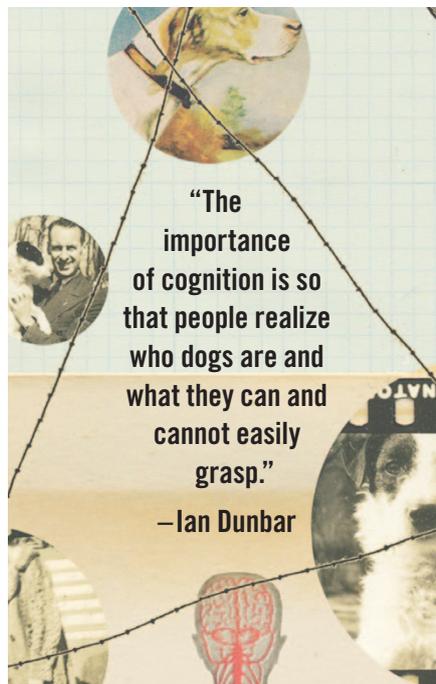
Despite the thousands of years dogs and humans had spent in close proximity, scientists had never explored either the relationship or the factors that allowed dogs to become our social partners.

Dogs' perspective as members of the human environment was missing from the equation. "It's odd that this companion animal who has been at our side longer than any other is really not well understood," observes Kristina Pattison, researcher at the University of Kentucky's Comparative Cognition Laboratory.

"Dogs suffer from a failure of imagination by those asking the questions," explains Mary Lee Nitschke, professor of psychology, Certified Applied Animal Behaviorist (CAAB) and founding member of the Association of Pet Dog Trainers (APDT). "If you already 'know' a dog can't think, you're not going to ask whether it can think."

In 1994, imagination and an open mind prompted the creation of the Family Dog Project at Eötvös Loránd University in Budapest, initially under the guidance of Vilmos Csányi, and now headed by Ádám Miklósi. Rather than taking the position that dogs' place among humans was unworthy of scientific investigation, they put the dog, and the dog-human relationship, under the microscope.

While previous studies had investigated owners' intimate feelings toward dogs, the dog's perspective on this relationship had not received comparable attention (probably because canine penmanship is quite poor and they rarely complete questionnaires in a



timely fashion).

To explore the dog's perspective, the Budapest group placed companion dogs and their owners in a modified version of the Strange Situation Test, a behavioral experiment initially created to explore the mother-infant relationship from the infant's perspective. The test is simple enough. In a novel environment, a dog experiences separations from and reunions with an owner and a stranger while a researcher records the dog's behavioral changes. It turned out that dogs behaved much like human infants. The conclusion? The dog-owner relationship, like the mother-infant relationship, fulfills the criteria for attachment.

This research sparked a shift in perspective and demonstrated that there's a lot we don't know about dogs and their relationships with humans. For example, it was commonly assumed that in order for a dog to develop an attachment bond with an owner, the dog needed to be acquired as a puppy, and within a narrow age window at that. But when the Strange Situation Test was applied to adult shelter dogs who had low or restricted human contact, these dogs also displayed attachment behavior toward designated "owners." An additional study confirmed this; guide

dogs bond with their blind owners even though their relationship forms later in the dog's life. The takeaway message was twofold: older dogs can bond with new owners, and our assumptions about dogs are not always spot on.

Since then, scientific inquiry into dogs and the dog-human relationship has exploded. "It's almost like dogs have been rediscovered by scientists, and there are so many different aspects they can study," notes Mychelle Blake, APDT executive director.

Dogs have now attracted the attention of a range of disciplines, from animal behavior and psychology to evolution, genetics and veterinary behavior. Nowadays, companion dogs, working dogs, village dogs and even shelter dogs have become study subjects.

While some are interested in contributing to a growing portfolio of insights into "the dog," others have something else in mind. "Some of the present research does not directly pertain to dogs and the humans they live with," notes Márta Gácsi, researcher with the Family Dog Project. "Comparative studies may be examining the roots of different human social behaviors, and not necessarily concerned with the dogs themselves."

The Duke Canine Cognition Center, which is part of the university's Evolutionary Anthropology Department, takes this multifaceted approach. Their website explains, "Our goal is to understand the flexibility and limitations of dog cognition. In doing so, we gain a window into the mind of animals as well as the evolution of our own species."

"Research also has direct application for dogs and owners," reminds Gácsi. Jennifer Bentlage, who's working toward a master's degree in the cognitive biology program at the University of Vienna's Clever Dog Lab, agrees. "If I can explain the purpose of my research to my parents, then it's worthwhile." Bentlage, who is currently exploring social learning, has recruited her own dogs, Monty and Michel—shelter dogs from Spain and Greece, respectively—

as test subjects for her project.

“I am very interested in the dog’s cognitive abilities because this relates very strongly to the pet owner,” explains Ian Dunbar, founder of the Association of Pet Dog Trainers (APDT), veterinarian, animal behaviorist and director of the Center for Applied Animal Behavior in Berkeley, Calif. “The importance of cognition is so that people realize who dogs are and what they can and cannot easily grasp.”

Dog cognition, a seemingly technical phrase, is simply a catch-all-term that describes dogs’ attention, memory, perception, problem-solving and mental imagery skills. As you might imagine, the questions are endless.

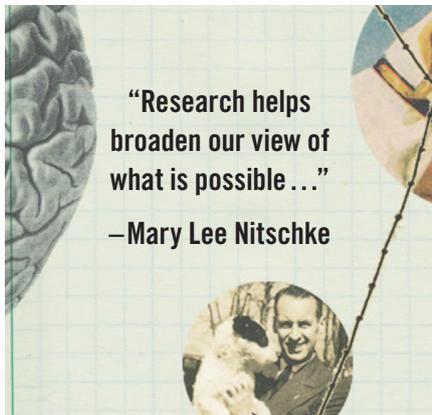
Crystal Thompson, a self-proclaimed dog-seminar junkie from St. Paul, Minn., thinks dog cognition research is paramount. “We have learned so much in the last few years that it behooves anyone interacting with dogs—owners, trainers, shelter workers, vet staff—to do a self-audit, to check their assumptions about dogs against what research is finding.”

We expect dogs to act a certain way, and they do.

Pet owners do not expect rabbits or cats to act as social partners, but we do expect that of dogs—and rightfully so. “Through selective pressures, we pushed dogs very quickly to be highly social, and they tend to live up to our social demands,” explains Pattison.

Dogs have the potential to move in tandem with humans, stopping when we stop and starting again at our first subtle sign of forward motion, but magic is not the mechanism (although the resulting experience can certainly feel magical!). Instead, research finds that dogs are astute surveyors of human behavior, and everything from our gaze to our larger body movements provides meaningful information.

For example, researchers have found that the right side of the human face better expresses our emotional state, and when looking at other humans, we display what’s called a left-gaze bias, or



a propensity to look toward the right side of the other person’s face, where all the clues are. When dogs look at human faces, they also display a left-gaze bias. Could your dog be sensitive to your emotional state? Yup.

And just as social contexts and relationships matter to you, they matter to your dog. Research has shown that if a stranger approaches your dog in a threatening manner, your dog will respond with avoidance/aggressive behavior. But if you approach your dog in the same way, your dog responds with tolerance and contact-seeking behavior.

In short, dog owners feel connected to and supported by the dogs they live with, and for good reason.

But sometimes, dogs don’t act the way we want them to.

When dogs are out of sync with us, we wonder why. “We bring dogs into our households and expect them to understand and behave like us primates... well, primate plus plush toy,” laughs Pattison.

This is where cognition research comes in. Is the dog’s assessment of a situation comparable to the human’s, and if not, what is the dog’s vantage point?

Numerous studies have found that dogs attend to human communicative intent. As your significant other may have told you (possibly more than once), how you say it matters. Want a dog to come to you from across the room? Research by Patricia B. McConnell, and beloved Bark columnist, explored how different sounds affect dog behavior: “Four short notes were more effective at eliciting a come response and increasing

motor activity levels than one longer continuous note.” In the real world, yelling “COOOME!” (akin to one longer continuous note) will most likely result in exasperation, but short, rapidly repeating notes, like “Pup-pup-pup,” will likely bring a dog on over.

Are dogs cooperative or competitive? Are dogs like chimpanzees, who more readily locate food in competitive situations when prohibited from going to a certain location. (A possible chimp translation might be: “The only reason you’re telling me not to go there is because that’s where the good stuff is, you jerk.”) Nope, dogs fare better in cooperative situations, finding food when informed of its location in a friendly, cooperative tone. Bringing this back to daily life: if you wonder whether the dog-human relationship is based on competition or cooperation, this is another check mark on the cooperative ballot.

Understanding the dog’s perspective is important because incorrect assessments of behavior can cause problems in dog-human relationships. “People think the dog is doing something to create trouble,” explains Florida-based Soraya Juarbe-Diaz, DVM, and board-certified veterinary behaviorist. “Almost everything on TV is about conflict—a fight, someone trying to win or cheat; it’s very confrontational and we are always looking for a fight for superiority. Fortunately, animals don’t always work that way.”

And why can’t dogs just do what we want them to do? In one study, dogs who performed a 10-minute sit-stay (meaning, they exerted self-control) gave up quicker on a subsequent task than dogs not required to exert that initial self-control. This initial act of controlling their behavior depleted their energy, thereby adversely affecting subsequent behavior.

The consequences for not understanding dogs’ behavioral capacities can be dire. “The biggest cause of death in dogs is behavior problems, and failure to inhibit is at the root of many behavior problems,” explains Pattison. “He barks

all the time—failure to inhibit barking; he growled—failure to inhibit an aggressive response. He jumps up—failure to inhibit jumping. We expect dogs to forgo their species-typical behavior patterns and inhibit them in favor of a response we find more appropriate.”

The applications for dog cognition research are vast. “The cognitive research says, look, the dog is not doing this to get your goat, he’s not doing this to diss you, he’s not trying to dominate you and take over the world,” says Dunbar. In other words, he’s just being a dog. Kelly Ballantyne, DVM, finds that the “final showdown” misconception often results in inappropriate owner-dog interactions and worsening of the dog’s behavior.

Dog-care professionals are taking note of this growing body of research. In 2004, APDT began including a science track at their yearly conference. Their mission is not simply to saturate trainers with research, but also to provide education about research methods and the nuances of study design. APDT leadership hopes that as more research hits the press, trainers will read studies with a critical eye and make informed decisions about their application for training. As Blake points out, “One study simply advances a hypothesis,

and ongoing research is needed to improve our understanding of dogs.”

“Research helps broaden our view of what is possible,” add Nitschke. “The fact that cognitive studies sometimes disagree with each other is wonderful, because it means there is more for us to look at. Different studies with different results broaden our vision of what is possible.”

Research also has application in the classroom. “My students were blown away,” reports Johnna Chamberlain, who teaches at the Lang School in New York City, a school for gifted children with learning differences. That’s how she describes her students’ reaction to “Dogs Decoded,” the NOVA special on dog cognition. “[My students] hadn’t considered that dogs were communicating through their barks, bodies or tails. Since [my students] might have social or emotional delays in relation to perspective taking, it was a big deal for them to consider their own relationships with pets and realize that dogs are communicating and thinking in their own unique way.”

Thompson looks at the breadth of cognition research from a different angle; she wonders whether owners are providing for their dogs’ mental needs. “It’s important for owners to realize that dogs have real mental abilities and needs. Putting food in a dog’s bowl is just wasting his brain. It’s the little things—Kongs, Tug-a-Jugs, hiding kibble around the house—it’s not hard, and it’s a simple way to engage their natural abilities.”

“How you interact with dogs often depends on your impression of their abilities,” notes Juarbe-Diaz. Reframing our expectations, with a little help from research, could set up dogs to succeed in our primate world. As Gertrude Stein said, “I am because my little dog knows me.” Shouldn’t we do the same for dogs? 🐾

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Dig In

Family Dog Project, Eötvös Loránd University
familydogproject.elte.hu

Clever Dog Lab, University of Vienna
cleverdoglab.univie.ac.at

Comparative Cognition Laboratory, University of Kentucky
uky.edu/~zentall/sciencedogs.html

Duke Canine Cognition Center, Duke University
evolutionaryanthropology.duke.edu/research/dogs

Horowitz Dog Cognition Lab, Barnard College
dogcognition.com

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