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Friendship Goes Both Ways

For centuries, dogs and humans have shared an unbreakable bond. In paleolithic times, dogs helped humans to hunt, and they serve integral roles in our society today, such as guide dogs, all while continuously maintaining their role as man's best friend. Researchers like Julia Espinosa, a researcher of dog behavior and cognition at Harvard University, are working to understand the many layers of cognitive abilities that dogs are born with and develop in early life that have allowed them to create this bond with us, and other dogs.

Although dogs may not see the same colors and communicate the same as us, dogs have a rich perception of the world through smell, and can interact and understand in ways we never thought they were capable of. Uncovering the complexity of their intelligence can even help us as humans to better our society, and to increase education around animal rights advocacy. Science journalist Alex Fox wrote an article published by the Smithsonian Magazine, titled "Puppies are born ready to communicate", which urges us humans to open ourselves to a new type of perception. "Finding a genetic basis for dogs' social intelligence fills in a big unknown in the story of how they became domesticated and could one day help breed better service dogs—which need to be whizzes at reading human cues…" (Fox). Fox states that taking the guess out of which breeds are most suited for guide dogs will lead to a more efficient society, but learning more about the complex perception that dogs have can help us to learn a deeper understanding of their needs, strengthen our communication with animals, and create more

informed ethical awareness. If we create more public awareness about the cognition of animals, we can help to reduce harmful treatment of animals and foster a more compassionate and humane society.

Espinosa led a study that found dogs are able to estimate where an object lands when they are only able to see where it is dropped from. "Searching high and low: domestic dogs' understanding of solidity" They tested the dogs using a special contraption that contained a removable shelf, and had a screen placed in front of the shelf so that the dogs could not see where a treat would land when it dropped – they had to estimate where the treat would have dropped. However, dogs were able to see the ends of the shelf to tell if the shelf was there or not. Dogs were first tested with the shelf, and then without the shelf. There was ample comparison between the two very similar tasks, and there was little change in the dog's abilities to locate the treat. "Overall, it appears that apparatus configurations did not influence dogs' search behavior and a majority of dogs were able to accurately search the correct location first based on solidity information." (Espinosa et al.)

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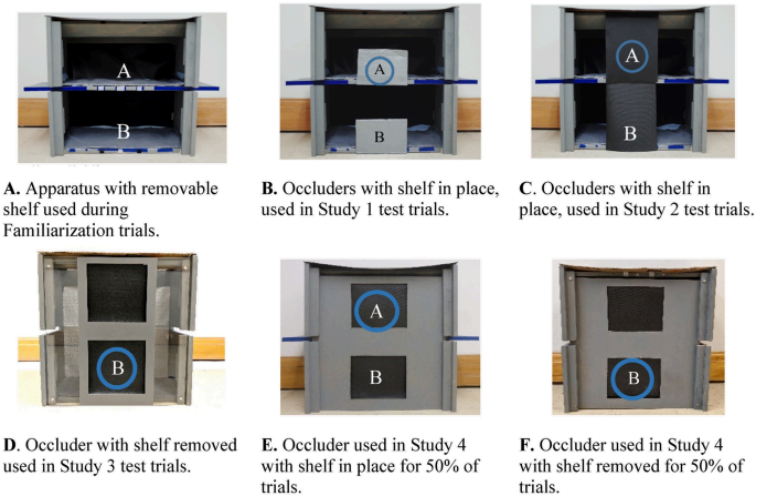

A. Apparatus with removable shelf used during Familiarization trials.

B. Occluders with shelf in place, used in Study 1 test trials.

C. Occluders with shelf in place, used in Study 2 test trials.

D. Occluder with shelf removed used in Study 3 test trials.

E. Occluder used in Study 4 with shelf in place for 50% of trials.

F. Occluder used in Study 4 with shelf removed for 50% of trials.

Figure from Espinoa's "Searching high and low: domestic dogs' understanding of solidity" This is a figure of the contraption used with the removable apparatus.

Espinosa also contributed to a project researching dog's perception of the world, focusing on their applications of object permanence and the different type of vision than what humans

experience, in an article titled "The Physical World of the Dog." In this study, dog treats were either hidden behind or placed under objects, like a cup, and each dog was tested on their ability to solve the task when knowing that a treat was not in direct view. It was found that dogs are almost equally as successful in finding a treat with a cup placed over it as when it was in direct view, while they struggled more when the cup was just placed in front of a treat to block it (Espinosa et al.). This study gives us more information on how dogs perceive the world around them, and can teach us certain sensory advantages and disadvantages that dogs hold. Another recent study by Dr. Emily Bray, analyzed the development of these skills such as solidity and object permanence in dogs in the first two years of their life, in an article titled "Dog cognitive development: a longitudinal study across the first 2 years of life." A collection of dog cognitive development battery (DCDB) tasks were assigned to puppies earlier in life and to other older dogs. These tasks included retrievals, gesture use, odor control, memory, and perceptual tests, which research demonstrated that dogs were able to further master these types of tasks with age (Bray et al.).

The work of Espinosa, Bray, and colleagues is a gateway to developing methods to learn about how animals' brains work, which could greatly improve our society and the way that we advocate for animal welfare. Espinosa gave a TED talk called "The Secret Life of Dogs", in which she touches on how the breeds of dogs being tested are chosen to determine which breed is best suited to be trained as service animals. This could benefit us as humans, but she urges us to consider the broader meaning of the capabilities of dogs. Espinosa's talk reminded us to humble ourselves about our perception of the world. We are so quick to always think that humans are the best at everything – but if we could understand what just dogs are capable of accomplishing with their sense of smell, we can begin to have a greater appreciation for the

various qualities in all animals and even learn more about our own perception of the world. At this stage in animal cognition research, dogs can not only serve as a friendly companion, but a gateway into discovering a more vivid perception of the world. If we are taking advantage of some of these incredible qualities that dogs have, why are we not taking more action for the better treatment of their species?

Figure 2: Julia Espinosa giving her TED talk: "The Secret Life of Dogs."

If we trust dogs with the responsibility of protecting human lives, we should improve the way that our society values their lives. One of the roles that dogs serve to better human life is as a service dog. The tasks that they are responsible for are extensive, and require extreme awareness of surroundings and of the person that they are helping. This video provides a glimpse into what life as a service dog looks like. Darin Peets is a kindergarten teacher who was paralyzed in his childhood, and his dog Rex is always by his side. Rex completes essential tasks that Darin can't do, such as opening doors or pressing buttons, and is a loyal companion to Darin. In Rex's example, we can see dog's incredible abilities to understand their surroundings

and make quick and informed decisions have increased the welfare of human lives for centuries, and it is imperative that the ethical standard of the treatment of dogs reflects their contributions to our lives.

Figure 3: Rex in the Classroom: [watch here]

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